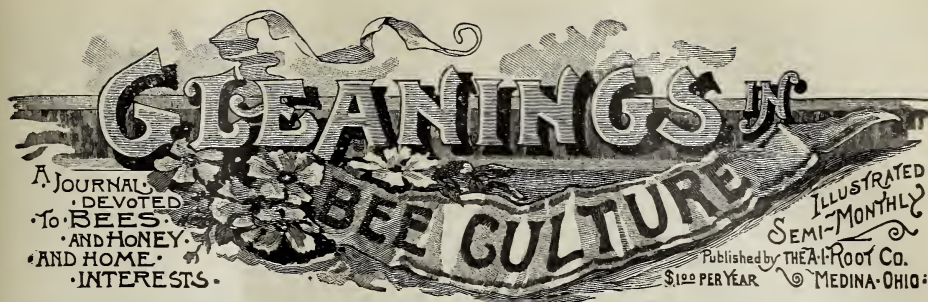


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Vol. XXIII.

MAY 1, 1895.

No. 9.

STRAY STRAWS FROM DR. C. C. MILLER.

FOUL-BROOD CURE of McEvoy, says *B. B. J.*, was advocated by Shirach in 1769.

HONEY, applied outwardly, is reported in *B. B. J.* as a satisfactory cure for chilblains and chapped hands.

THE USUAL number of pages in *GLEANINGS* is eight more than usual, and this time sixteen. If that thing goes any farther I'll have to sit up all night to read *GLEANINGS*.

How MANY bright bee-keepers are coming to the surface as writers! [Yes, I've noticed that there were more lately. I am glad of it, because it infuses new blood into our literature.—Ed.]

THE "LONG IDEA" hive, if I am not mistaken, was just as popular with Poppleton in Iowa as in Florida. This in reply to A. I. R.'s query on p. 320. [Then is it a question of locality, or of the man?—Ed.]

A 12-FRAME HIVE is what Observer in *Progressive* says Ernest Root has "gone and done." How's that, Ernest? Have you been getting up a new hive so much on the sly that I haven't noticed it? [See Editorials.]

F. L. THOMPSON, in *A. B. J.*, wants bee-journals to be more like conventions in having pithy, good-natured discussions. Good idea. [That's so; but the editors must have the help of their contributors.—Ed.]

BOARDS $\frac{3}{8}$ thick were tried by Ed. Goodrich, for hives. It was hard to keep them warm enough for brood-rearing in spring. In the fall, combs and bees were kept damp by the ready condensation of moisture.—*A. B. J.*

CAGING THE QUEEN at swarming and cutting out cells twice, as given by E. France, p. 304, is a good plan that I formerly practiced, only I freed the queen at the last cutting of cells instead of keeping her caged ten days longer. I believe you'd like that better, friend France. I learned the plan from Doolittle.

I SECOND the motion you make on p. 312, Mr. Editor, to try to get an appropriation from Washington for the N. A. B. K. A., and may be Canada could chip in too; but I don't see why that should make any less effort in each State.

THE NEBRASKA *Queen* has a warning from Prof. Bessey against sacaline. After growing roots obtained direct from Russia, and giving it a fair trial, he sums up his opinion in these words: "I am confident that it is a rank fraud." Alas! farewell, sacaline.

"How MUCH CONVENTION time should be given to essays?" is a query in *A. B. J.* One man wants the time all taken up with essays, "unless the discussions can be well managed;" two or three would rather have no essays, and nearly all agree that essays should be short, merely used to start discussion.

HONEY OR BUTTER? Dr. Peiro, in *A. B. J.*, says of honey, "Its nourishing properties are certainly equal to, and for many greater than, that of the best butter; and in view of the danger of butter from cows affected with tuberculosis he raises the question whether it would not be wise to substitute the perfectly safe article, honey.

DOOLITTLE is right, p. 313, that bees gnaw foundation whenever they're idle, but I've found it only at the close of the honey season, for the simple reason that they've had the chance only at that time. I've had to put on sections in advance of their need, for want of time later; but the bees are busy in the brood-chamber, and don't gnaw sections then.

BURNING SULPHUR made a yellow deposit for you, Mr. Editor, p. 317. I've had a few sections at different times discolored with sulphur, and it was always a greenish color. I suspect it makes a difference on what surface the deposit is made. [My "yellow" you might call a "greenish color." The difference, I suspect, is not in color but in the individual.—Ed.]

FIGHT FAIR, friend Boardman. On page 294 you teach that a queen doesn't go into the super over a square hive; but that in the long shallow hive, queen-excluders and other ex-

pensive devices are needed. My queens are not hindered in any way from going into the supers, and it's a very rare thing for them to do so.—[Yes, reports seem to show that this is so.—Ed.]

RAMBLER, p. 299, thinks bees don't sting hogs, on account of the smell. When rattlesnakes were plentiful here—I killed 11 my first summer in Illinois—hogs killed them, and I never heard of a hog being hurt by a rattler. It was said the snake couldn't bite through the hog's hide. Can a bee sting through it? Anyway, how much better than a sting would it be to smell like a hog?

HONEY FOR BABIES. "M. Forester Dietz has had his infant son, now aged seven months, reared entirely with the bottle which contained milk sweetened with honey. Has already consumed 25 lbs., is strong and plump, has never had a single pain, and sleeps soundly the whole night. At first the child received half milk and half honey liquefied with water; now he has four parts milk and one part honey liquefied with water."—*Bulletin d'Alsace-Lorraine*.

CHAPMAN HONEY-PLANT seed is offered free in B. B. J. Don't fool with any big quantity, friends, I suppose acres of it were planted in the U. S., and I believe it's the only honey-plant that the government ever furnished free to bee-keepers; but if there's a single man who now cares to occupy ground with it he is keeping very still about it. [The Chapman honey-plant was not a success in this country; but the bees make a great show on a single plant.—Ed.]

RAILROADS in England have "agreed that bees in hives sent in truck-loads to the moors during the heather season, should be conveyed at 6d. per truck per mile, station to station, owner's risk, with a minimum charge of 7s. 6d."—B. B. J., page 14. That means, if I understand rightly, that a carload of bees will be taken 40 miles for \$5.00. How much would it cost in this country? [Bees by freight go as third class. The rate on a carload of bees to Cleveland (about 40 miles) would be 10c, making the total freight \$20.00, or just four times as much as in England; and this, notwithstanding that railroad companies in the mother country pay enormous taxes in support of the government.—Ed.]

Is JAKE SMITH a plagiarist? or have the people across the water been getting points from him? At any rate, that idea of measuring bees' tongues is having very serious attention in France. Actual measurements with ingenious glossometers show a great variation in the different colonies of the same apiary. By careful selection persistently followed up, why may not a permanent strain of red-clover bees be established? [If our queen-breeders would spend more time in developing a strain of red-clover bees and less to yellow bands it would be better for the honey-producer. We are

getting a large number of complaints from bee-keepers who have purchased the yellow stock. The past winter has shown that the majority of the colonies of this strain are practically good for nothing so far as hardness is concerned. As I have before said, the tendency is to sacrifice every thing for color. In a few rare instances, other good qualities are present. Yes, let's have long-tongued, long-lived, long-houred workers.—Ed.]



FEEDING BEES.

DOES IT PAY? THE SUBJECT REVIEWED UNDER NEW SIDELIGHTS; A PRACTICAL ARTICLE FROM A PRACTICAL MAN.

By H. R. Boardman.

There are some kinds of feeding that pay well, and other kinds not so well, and some kinds not at all. I will try to show what kind of feeding pays, and how it pays, and what doesn't pay, and why.

After the honey season is past, if there are any light colonies in the yard that lack only winter stores to make them good promising colonies for another year, I am sure that the expense of a few pounds of sugar, and the trouble of feeding it, will be repaid with good interest unless such colonies are to be united to prevent increase. I don't think this will need the support of any very long arguments. It is often said, though, that there should be no light colonies at the close of the season, with good management. I wish I could manage so wisely; but I can not, and I am assured by the reports that others do not, so the need of feeding is apparent in this case. These late-fed colonies make the very best to winter, and for the next season if the work of feeding has been thorough. They should be fed enough to carry them not only through the winter, but through the early spring as well. The giving of liquid feed is more profitable in the fall than in the spring. The fall feeding gives young bees for winter. Spring feeding, by exciting the bees to activity, induces them to fly out, when they are chilled by the cold spring winds, and many will thus be lost at a time when there are no bees to be spared. It may induce robbing also, and much of their vitality will be spent in useless activity in marauding.

If colonies should be found light in early spring, there is one kind of feeding that I would always recommend. Place combs of sealed stores next to the brood-nest; and it pays to be provided with these for an emergency. Upon the first cost of the brood-nest depends very much the future value of the colony. The old bees are in sufficient force early to do the work

if they but have stores and a good queen; but not so later on.

When early pollen appears from the willows and maples, which is usually in the fore part of April in this locality, the queen gradually expands the brood-nest by laying around the outside until the first or earliest in the center of the combs begin to hatch, when she will return to the center and commence to refill the combs with eggs as the brood hatches. In the mean time the old bees fail rapidly, and there comes a time when the disappearance of the old bees gives the colony a very feeble appearance; and, indeed, it is a very critical time, and must be bridged over by the few young bees already hatched. A cold spell at this time is sometimes disastrous, although the sealed brood generates considerable warmth, which helps to protect the central brood-nest, which is now being filled with eggs.

It will be readily understood that feeding at this time would do very little good, and only imperil the colony by exposure to robbing. Many colonies will be so weak in workers as to refuse feed entirely. About the first of May the colonies will usually begin to build up rapidly from the hatching brood. At this time, or as soon after as the weather and the condition of the bees will warrant, the giving of liquid feed may be safely and profitably begun; and the brood raised from the stimulus of the feeding will furnish workers for the early honey-gathering. The natural pollen-supply is of much importance in connection with the feed, and should be carefully watched.

FEEDING UP TO THE SWARMING SEASON.

Feeding before the swarming season to supply winter stores is another kind of feeding that I have practiced with quite gratifying results for several years. It is expected that worker-bees, raised on honey for the honey-harvest, will more than pay the expense of raising them; but it is not very gratifying in a poor season to have only enough honey to raise them, and none to go into the surplus for the bee-keeper's share. By the time the surplus season begins (10th to 15th of June in this locality), the brood-combs will usually be exhausted of stores, or nearly so, and no work can be expected in the sections until these are filled to their utmost capacity; and the amount of the choicest honey of the season required for this purpose would be an important item if secured in the sections, especially in a poor season.

It occurred to me some years ago that sugar, exchanged for honey at the prices of the two, if the exchange could be economically effected, ought to be a good trade for the bee-keeper, and it is this kind of exchange that I have been trying to make with my bees by supplying them with sugar for winter stores before the honey season, and allowing them to put the honey into the sections for my share in return. The advantages of this plan are, it furnishes stores

for wintering the bees, that are unsurpassed by any gathered from natural sources. It answers at once for stimulative and store feeding. It keeps brood-rearing going without interruption from failure of the natural honey-yield. It takes the place of the same amount of honey that will be stored in the sections. I expect to commence feeding only moderately—just sufficient to stimulate brood-rearing and increase as the season advances, so that, at the beginning of the surplus season, the combs will be filled and sealed over outside of the brood-nest. It is hardly necessary to explain that these stores will not be used by the bees except in an emergency, but will remain for winter stores and for brood-rearing the following spring. I want the hives well filled with brood at the beginning of the surplus season—the more the better; and if all combs outside of the brood are occupied with sealed stores I should not expect to wait long for work to begin in the sections, provided the bees were gathering any honey; but the persistence with which they continue to store in the brood-combs at this time is often disappointing. But, "the best-laid plans of mice and men gang aft agley," and this plan is not without its difficulties and perplexities. The prosperity of the bees under such generous treatment encourages swarming; and just as our plans may all be perfected the bees often upset them by introducing something of their own, and swarming out, leaving our well-filled hive and our well-laid plans for prospective surplus, to start business anew. Then we meet the same old difficulty—no more nor less than under the influence of a liberal honey-yield from the flowers. To get the full benefit of this plan, then, it is necessary to prevent swarming, or return the swarms; or if increase is desired, feed up the new colony.

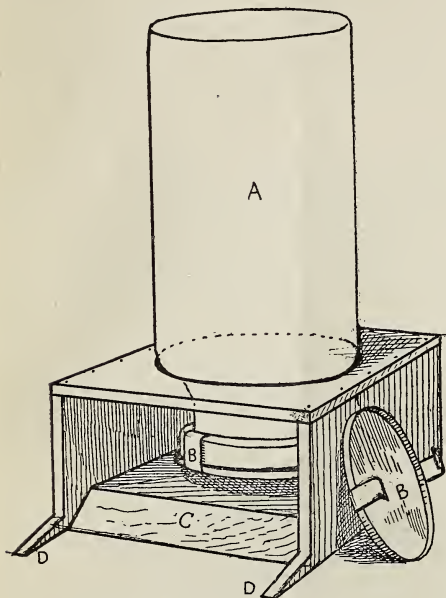
I mention this difficulty, as it seems to be the most serious one in this plan. I think most practical bee-keepers would feel able to overcome this in some way. Almost every bee-keeper has a non-swarming remedy; but mine is—*young prolific queens*.

East Townsend, O.

[Mr. Boardman has made the subject of feeding a very careful and critical study for the last four or five years; and it is only now that he has reduced this valuable experience to writing. Of course, many of the veterans will say there is nothing new to say on the subject of feeding. In a certain sense that is true; but in another sense it is not true.

Regarding fall feeding, I might explain that I called on Mr. Boardman last summer, after the honey-flow, and he was feeding his bees with his entrance feeder, right along during the robbing season. The construction of the feeder is such that it is not necessary to open the hive, and almost impossible for robber-bees to get at the feed without going clear through the entrance, past the sentinels, and getting out again with their load if they can. At the time of my visit friend B. was not ready to have his feeder described; but now that he has it fully perfected he has consented to have it done, and

I take pleasure in showing you the illustration. A is an ordinary fruit-can, and B a special cover having a flange sticking up high enough so as to make what is known as an atmospheric feeder, on the Hains style. This is then inverted and set right down over a hole in a box so constructed as to fit closely to the entrance on one side. The points D D project clear in,



BOARDMAN'S FEEDER.

making it necessary for robber-bees, if perchance they are able to pass the guards, to go clear into the hive around D. It is altogether improbable a robber could accomplish her pesky meanness without being "caught in the act."

I have not been advised as to whether Mr. Boardman expects to sell these feeders; and while the main principle is old, the method of application is new. All together, he has, in my opinion, a *moral* right to the control of the sale.

I have examined a great many entrance feeders, but I do not know of any that seem to secure so perfectly the result as this does. Indeed, I never saw any thing yet attached to the entrance in the way of a feeder but that would make more or less of a hubbub in the apiary; but Mr. Boardman's bees at the time I visited his yard were as quiet and peaceable as if clover honey were coming in. This happy result I attribute largely to the projecting points D D.

In our next issue, Mr. Boardman will say something about feeding back, sugar honey, etc.—ED.]

ARRANGEMENT OF BEE-FORCE.

THE BEST WAY TO STRENGTHEN WEAK COLONIES; A SEASONABLE ARTICLE.

By C. A. Hatch.

The success or failure of a commander of an army depends much on the arrangement and distribution of his forces. The part to be actively engaged must be placed so as to get

every advantage of position possible, and the reserve force must also receive proper attention and thought as to place and base of supplies.

Every bee-keeper occupies, in a certain measure, the position of commander of an army. The field-bees are his active forces; the nurse-bees and downy young ones are his reserve; the fields and forest his battle-ground which are to be robbed of their hoarded riches for the enhancement of the commander's interest. And no army ever proved more faithful, or adhered more closely to their chief's interest, than will this army of busy workers. But no commander's success depended on his arrangement and placing of his command more than does the bee-keeper's. Therein does he show his skill. If it were otherwise, any one could succeed in bee-keeping; for all there would be to it would be the possessing of the bee-force, and the bees would do the rest: whereas this force must be guided and directed, even as much as the army must be commanded, to be successful. Weak battalions must be strengthened; strong battalions must support and help the weak. The above is only a prelude, to borrow a musical term, to the real object of this article; but the fancying myself a commander-in-chief pleased me and may others; perhaps it tickles my bump of self-esteem.

WEAK BATTALIONS.

What to do with weak colonies in the spring is one of the ever-recurring problems that come before the bee-keeper. The old maxim, "Keep all colonies strong," may be true enough as a general principle, but it will hardly apply here; and trying to make it apply has ruined what might have been a fair colony for profit at the close of the honey season; for to do this (make them strong) only two ways present themselves—to build them up with brood from those already strong, or put several together, and thus make one strong at the expense of several. In following the first method, you have not increased your bees any, only put your forces in a new position, thereby weakening the battalion that was none too strong, and putting the force subtracted where its only use is to support the poverty of its adopted home, without any serious results as to alleviating it.

If the other course is followed, you have destroyed at least half of your recruiting force by destroying the queens of those united with the others; and, furthermore, the chances are largely in favor of your united colony being no stronger at the end of two weeks than any one of them was at the beginning. It is well to bear in mind that all the bees brought out in the spring are old, and their term of usefulness is limited to days or weeks at the furthest, and no amount of uniting will save them from this fatality. One hundred bees in one hive will die just as soon when their time has come, as they would in ten hives.

THE CAUSE OF WEAKNESS.

This is first to be inquired into. Usually the queen is at the bottom of the trouble, but not always. She may be a drone-layer by reason of age or having passed her time of usefulness, or by reason of being raised too late in the fall before to meet the drones. In either case the only course is for the apiarist to destroy her and give her bees to some other colony. Other queens may be all right, but able to lay only a small quantity of eggs in a day. It is of this kind that you will probably find most, and here the former treatment would be suicidal. Simply let them remain; tuck them up close with enamel cloth and quilt, or division-board; see that they have plenty of honey, and do not disturb them until about ten days before clover-bloom, except to see that the queen has room to lay at all times. At this time, if you have observed the proper conditions as to food and warmth, each colony will have increased perhaps from three to five frames. These, if left to themselves, would, of course, not amount to much as honey-colonies in their present shape, for it would take about all the bee-force to maintain the heat of the hive, etc.; but I find that, by uniting the working force, we can get, even from this unpromising material, some surplus. First, look your colonies over and ascertain just how many frames of brood there are in each, and mark them in some conspicuous place with that number, selecting the best for your honey-colonies; then from the others take frames of sealed brood with adhering bees, and fill these honey colonies full of brood, putting the removed frames into the colonies from which the brood was taken. Just how many to leave in the robbed colonies will depend much on the weather at the time; if warm and fine, all but the eggs and unsealed brood may be taken, for there will be returning bees enough to care for them. Of course, it hardly seems necessary to say, "Do not carry away the queen, and mix the bees well in their new home." This is easily done by mixing the frames from different hives, not putting two from the same hive side by side. With this plan I have never found it necessary to cage the queen. By this plan, you have not increased your bees by one; but you have put them where they can do your work better, and their own housework will not suffer materially.

You have now quite a number of fighting battalions ready for the coming onslaught of forest, field, and plain; whereas, by building up the weak from the strong, only weak forces would have been at your command, and the spoils would have been few and scanty.

But the war is not over yet. You have these few weak colonies yet to care for. What shall we do with them? They will have increased some by the time swarming commences, and are worth looking after.

SWARMS.

These will probably come from your strong

colonies very soon after honey commences to come in, and then is the time to show your generalship again. Remember that increase of number of hives containing bees is not necessarily an increase of bees. Our maxim now should be: Allow no increase until all hives now occupied are *full*. Having this always in mind, one can readily see how to arrange those weak forces. Allow the swarms to issue in the good old way, which, in my mind, has no equal; hive them on their old stand, which is a small job if you have the queen clipped, as you should. Give them a new hive with two frames of unsealed brood, taken from the old hive, in it, and fill out with empty combs, foundation, or empty frames, as experience or conditions dictate as best; put a surplus arrangement on top, and your honey-gathering goes merrily on at the old stand in the old way, but with added vim. Take your eight frames of brood, which you have left from the old colony, and put them in two or more of your weak colonies, and by the time basswood blooms they are weak no more. If you think the queen is poor, and would rather replace her, all you have to do is to decapitate her majesty and put a frame containing a queen-cell in the hive, and you soon have a new queen to reign over your new colony.

After all colonies are made strong in this way, and if swarming continues, you can get all the increase desired by making nuclei of the brood instead of putting it in other colonies. This plan has been the one I have followed for several years, and can yet see no reason for change.

Ithaca, Wis.

[Here is another article on the same subject.—Ed.]

MANUM IN THE APIARY.

SPRING MANAGEMENT; JONES TAKES ANOTHER LESSON.

By A. E. Manum.

"Manum, do you run a hot-bed with all the rest?"

"No, Jones; this is what gardeners call a cold-frame. For the want of a better place, such as a hot-bed or a greenhouse, I start my plants in the house, and then transplant them into these little three-inch pots, and on sods, and set these in the cold frame."

"Do you expect those cucumber and melon plants to thrive when put out in the open garden?"

Oh! yes, if they are not put out too early, by growing them in pots and on sod they can be transplanted without disturbing the roots in the least; in fact, they never seem to stop growing when put out if kept watered. Now, Jones, we will see how the bees are prospering. We will make short work of it to-day, as the middle of April is pretty early to expose the brood-nest very long to the cool air. We can only look after their store of honey, and see how they are

prospering in the way of brood-rearing. There, this colony has some brood in four combs, equal to two full combs. Pretty good for this time of year!"

"Now, Manum, I get a little confused in calculating the amount of brood or honey in your hive when reckoned by frames. You see, I use the Langstroth size, while you use the Bristol frame, which is much smaller than mine. Now, what portion of my combs would be occupied by the amount of brood contained in two of your combs?"

"That depends somewhat upon the comb surface in the L. frame, since it varies somewhat, owing to the varying thicknesses of top and side bars. There is in one of my frames 114 inches of comb surface, while an L. frame has about 151 inches, making 37 inches more in the L. frame than in mine. The comb surface in 9 L. frames just about equals that in 12 of my frames, so that it takes nearly $2\frac{3}{4}$ of my frames to equal 2 of yours. Here is a colony that was strong in bees when we opened them last week, and just see how they have dwindled down. Oh! I see—the queen is a cripple. She can but just drag about; and see! there is a dent on her back. She has been caught in a tight place somewhere, to have met with such an accident. Well, I might as well break up this colony at once. What few bees there are I will unite with that light colony over on the other row. The queen I will drop down here and put my big foot on her. That makes one more colony to be numbered among the dead."

"Why couldn't you use these bees for a nucleus for queen-rearing, and save the breaking-up of a colony later on, as you spoke of this morning?"

"It is altogether too early in the season for that, Jones. I never think of forming nuclei before the 15th of May, and then only a few. I form the greater part of them after the first of June; because, of late years, the most of my orders for queens are for yearlings, which I commence to ship about the first week in June; and, furthermore, such bees as these would be nearly worthless for queen-rearing, as there are so very few young bees among them. You see they are all old settlers, and would be short-lived at best. In fact, I do not suppose they are even worth the bother of uniting with other bees; but I will unite them just for the sake of showing you how I do it. Now, there are just about bees enough here to cover three of my combs, hence we will remove all but three combs, and close the hive for thirty minutes or so, and in the mean time we will transfer two good colonies from my hives into these little experimental non-swarmer hives; and as the season advances we will watch their progress. Now we will unite those bees. First, I will remove three combs from the light colony, from near the cluster, leaving one comb of honey close to the cluster, and now I will place the three

combs, with the queenless bees, next to this honey, and the job is done. You will observe that this comb of honey between the two lots of bees keeps them separated until they become better acquainted, or all of the same scent, and then they will unite of their own accord."

"Manum, I see on this next hive a blue stick tacked on the front gable end. What does that indicate?"

"That indicates that the queen in that hive is one selected last fall for a breeding-queen; that is the way I mark them, so that, when I am in a hurry, I can go right to one of these hives without having to refer to my book. We will open up this hive and see what is in it.

"Goodness! this is a strong colony; see the brood! Why, they will swarm in two weeks, I should judge by the strength of the colony.

"Yes, this is a good queen; just see how large and plump she is, and how large and strong appearing her bees are. I am tempted to *steal* a comb of hatching brood from this colony and give it to that light colony, to which we gave the queenless bees. It would help them wonderfully—much more than those old bees will. Yes, I will do it, although it is too early for such work; but this colony can well spare the brood. The only fear I have is, that the light colony may not be able to care for the extra brood. But I will heat a brick and put it into the unoccupied half of the hive every night and morning, for a few days, and I think there will be no loss of brood."

A. E. MANUM.

Bristol, Vt.

Our Symposium.

THE LARGE OR THE SMALL HIVE.

LARGEST YIELDS FOUR TIMES OUT OF FIVE FROM THE LARGE HIVE; NOT A QUESTION OF LOCALITY; A STRONG ARTICLE.

By J. A. Nash.

I have read with much interest many of the articles on the hive question, but did not intend to say any thing myself, until the editor remarked that the subject was *still* open; then I concluded to say a few words.

In a number of the articles on this subject, the writers speak of a large hive for one locality, and a smaller one for another. Mr. Editor, is there so *very* much in this? I have been interested in bees since I was a boy; have kept them for the money there was in them, as well as the keen enjoyment I derived from a study of their habits; and in the years that are gone, when the flowers of our Iowa prairies and groves secreted honey, I believe I secured my share of it. Now, if the experience of over a quarter of a century has taught me one thing more thoroughly than another, it is this: While you can keep a small colony in a large hive, it is another matter altogether to have a large booming colony in a small one; and that a small

hive can be depended on to take the swarming fever altogether too often for the good of its owner's purse, if he wants a large yield of surplus honey. Were I depending on the sale of bees for an income, I would take the smaller hive every time. My largest yields of honey have come, four times out of five, from the large hives.

For many years I have produced extracted honey; but before the extractor came into general use I made shallow frames, about five or six inches deep, for supers on the Langstroth hive. These frames had a pair of vertical center-pieces nailed in. I would remove the filled frames, and saw them apart in the center, thus making a very salable package. Sawing off the top and bottom bar in the middle, leaving the center-piece as an end, I crated about 25 or 30 lbs. in a neatly dressed basswood box, and sold at a good figure, wholesale, to the merchants in the city, besides supplying many private families. But I digress. Much of this honey was stored in L. hives of 12 and 14 frames each. Our locality was good, and the yield from the large hives noticeably greater than that of some 25 or 30 hives, ten-frame L. size, but only six inches in depth.

On the road to one of my out-apiaries, years ago lived a bee-keeper of the old school. His apiary was composed entirely of basswood "gums," worked out thin and raised up from the bottom-board by flat stones about one inch thick. The capacity of these "gums" was, as their owner assured me, "purty nigh a half salt-barrel." To obtain surplus, he bored holes in the cover, and placed another large hollow log over the first, and in this way he often obtained large quantities of honey. I purchased ten first swarms of him one year, paying him \$60.00 cash for them (remember this was years ago, when bees were very high). They were very large fine swarms; were hived on empty frames (twelve-frame L. hive), yet I sold from these ten colonies over 400 lbs. of surplus honey at 24 cents per lb.

Some 50 or 60 rods down the stream lived another bee-keeper, a widow. Her bees were in box hives, as nearly as I can remember, 10x12 inches, and 13 inches deep. I am very certain in regard to the depth, as she assured me that 13 was considered an unlucky number; but she did not believe in luck at all—at least, *ill* luck. I left her 20 hives. Mrs. W. filled them with the swarms that issued in great plenty from her small hives. I paid this bee-lady \$80.00 for the 20 swarms, she readily admitting that Mr. K.'s swarms were worth more than hers. In the fall I found two or three of these swarms too light and weak to winter, and one colony had stored a little surplus.

Now, the net results of my bee operations have been something like the above with variations; and as I look back over the past, I find that with me the large hive, the large colony, and

the large surplus, have traveled hand in hand irrespective of good or bad location. Two good men can do twice as much work in a day as one; two good teams will accomplish twice as much plowing in a day as one; and a swarm that, when shaken from the tree, will weigh from 18 to 28 lbs. will just as certainly gather more honey than one that tips the scale at only half that amount.

Some ten years ago I concluded I was using hives that were too large, and, moving to a new location (the present one), I made all my new hives to take ten frames 12x12. Of these I now have about 100, bee-spaced, loose bottom-board, flat cleated cover, and a movable side. On these hives I tiered up half-depth bodies, filled with empty honey-combs. I soon found, however, that my ten frames would not do for a twelve or fourteen frame queen, so nearly all my colonies have an extracting-case of ten half-depth combs *under* the brood-chamber proper, which I seldom disturb, unless it is to take it, with adhering bees, to build up some weak colony, in which case another empty super takes its place.

For the edification of those who think that eight L. frames are plenty for a queen to occupy, I will say that I have often found this brood-chamber of ten large and ten small frames well filled with brood in all stages of development, and the queen looking for room to lay.

I have no red-clover queens, and, as yet, no five-banders or golden honey queens—just plain, every-day leather-colored Italians and a few hybrids.

I believe some one said that this kind of high-pressure brood-rearing is a trifle wearing on the queen, and causes her to come to an untimely end. Such may be the case; but when I find one that can't fill more than six or eight frames, I step on her and put a better one in her place.

I don't believe my bees are the best in the world; but I do believe in breeding from the largest and most prolific, and the best honey-gatherers. I keep a record of each hive; and when I find one that has had as good a chance as the rest, and doesn't make as much honey as it should, that colony gets a new queen. Of course, this is written mostly from an extracted-honey point; but were I producing comb honey, I should want a large colony.

I must agree with Mr. Boardman (our hives are much alike) in regard to the square hive for practical utility—page 250—for brood-rearing and wintering.

Monroe, Iowa.

[Say, friend Nash, did you ever try two eight-frames, one on top of the other? You have given some strong points in favor of large hives; now let some other fellow who thinks differently produce counter-evidence if he can; but, hold! here is another one right in the same strain from Mr. Doane.—ED.]

SIXTEEN-FRAME HIVES A SUCCESS.

I commenced using 16-frame hives seven years ago this season. I made only one, as I was afraid. This colony is alive and in good shape yet. Four of the years it has given from 140 to 180 lbs. of comb honey. Two years they swarmed, when the parent stock gave about 60 lbs. one season, and 90 the other. One year they superseded the old queen, but didn't swarm. After trying this size of hive two years, I made some twelve or fifteen of them; and, as they gave like good results, I continued to add to the number of large ones in the yard, until I have now some thirty of them. I have the eight and ten frame, and have used them for twenty years; but I expect to put all in large hives this spring, as I get an average of nearly, if not quite, double as much from the large hives as from the small ones. Last season my best, in eight-frame hive, gave only about 60 lbs.; while my best in the large hive gave 220 $1\frac{3}{4}$ sections well filled, and 28 sections, same size, of No. 2 honey. If it would interest you to know more about these, and how I manage them, I will tell you.

I have 60-lb. cans ready to ship the honey in. If you should not want this honey, I will send you comb honey in its season. I have got raspberry honey off the latter part of June for several seasons.

I have just received one of your Cowan two-frame extractors from W. D. Soper.

Breckenridge, Mich., Apr. 6. N. E. DOANE.

[Although Mr. D. does not say so in just so many words, I assume that the 16 frames are all in one hive-body. The facts he gives are interesting. Can we not have more of them? Of course, we should be glad to hear from Mr. Doane further. Here is another:]

IN FAVOR OF THE TEN-FRAME HIVE.

I have 300 colonies on summer stands, some 200 with flat covers, and 100 with gable covers, all two-story ten-frame Simplicity hives. I have been very much interested in the eight vs. ten frame hive discussion. I have never used the eight-frame hive; have used the American pattern and discarded it. I think the ten-frame has advantages in this locality over the smaller hives. By their use we can build up to enormous colonies, and at the same time keep down swarming to a great extent. The natural swarms in my yards last season were 12 per cent. I use a two-story brood-nest, and often have sixteen frames of brood in the same. I run exclusively for extracted honey, so I have a less number of hives to visit for the same number of frames of honey, which is a great saving in labor. I would rather increase than diminish the size, by tiering up to three stories. I have used three stories to some extent, and find they give perfect satisfaction in my locality. I find that, by using eight frames in the extracting-supers, I am bothered less with brood in them. The cells being so deep, the

queen doesn't use them for brood unless they are cut down by the bees. My crop for the last season was ten tons of extracted honey from 270 colonies, spring count. Z. S. WEAVER.

Courtney, Texas, Feb. 14.

[And here is still another:]

You can put me down as being in favor of the large hive. I have about eight in ten-frame hives, and they have, strange to say, done all the swarming, and are the strongest colonies that I have. During my three years' experience with bees I have noticed that the ten-frame hives were ready for the extractor before any other, and after this season I expect to use no other.

Columbia, Miss. T. S. FORD.

THE EIGHT-FRAME LARGE ENOUGH.

In regard to the size of hives, I will say the eight-frame Dovetailed hive is large enough for me. In the past five years I have transferred perhaps a hundred colonies from larger as well as smaller hives than the dovetailed, and put them into the latter hive, and all appear to be well satisfied with the change. I find it large enough for an average queen; and when we get at the average, we are then as far as we should go.

JAS. PRATT.

Cumminsville, Neb., March 12.

[Friend Pratt has hardly a fair show. Who will help him out?—Ed.]

WINTERING.

WHY BEES CAN STAND LOWER TEMPERATURES OUTDOORS THAN IN THE CELLAR.

By Dr. C. C. Miller.

Dr. Miller:—Having been a reader of GLEANINGS for years, and studied the A B C of Bee Culture for nearly the same length of time, I have a question to ask, something like this: I have several colonies of bees in single-walled Dovetailed hives, and they have been wintered outdoors for three years in Southern Iowa. My plan was to move them up side by side, and about four inches apart, then pack with chaff in between, also put on a Hill device and a chaff cushion on top of that. Now comes the most important part of my question. Bees, even when packed in this shape, will freeze some. Now, why will it hurt if they freeze some in the cellar, providing the bottoms are left on the hives? For the life of me I can not see where the difference comes in. Of course, I presume there is some difference; and if so, please show us where it is.

I am thinking some of erecting a sod house for my bees next winter. The walls will be two feet thick, with hay for a roof. Now, please tell us what you would think of my sod house. Supposing they get a little cool in it, what worse will they be than if they got a little cool or cold outside? This winter I have moved my bees out to Northern Nebraska, and have

packed them as before stated, except they are packed in moss. We have moss that is three inches thick, and we cut out our cushions with the hay-knife to fit the upper stories; also to go in between the hives. Please say how you think moss will do as packing. I know the bees are well packed, but I also know they are in single-walled hives; and I know that, on the morning of Feb. 6th, the thermometer stood 10° below zero; and on the 7th, 23° below; and on the 8th, 20° below.

Now, friend Miller, I know this is quite lengthy, but I hope you will give it your attention, and oblige.

JAS. PRATT.

Bartlett, Wheeler Co., Neb.

[Dr. Miller replies:]

Friend Pratt:—I must confess that your question is a little too much for me. I've asked that question myself more than once, and never got an answer entirely satisfactory. When bees are in the cellar, if the thermometer goes down to 38° we are told it has reached the danger-point. But if they are outdoors, and the thermometer goes down to 15 or 20, or even if it occasionally reaches zero, we think it's all right. It is so generally conceded that there is a big difference whether the bees are out or in, that you wisely refrain from disputing it, and I suppose it must be true; but then comes your troublesome question, "Why?" I may as well say at once "I don't know," and be done with it; but really it's such an important matter that it seems we ought to be able to get some light on it. For if we knew *why* bees can't stand the cold in the cellar that they can outdoors, then we might possibly be able to supply the conditions in the cellar that will enable us to winter the same as outdoors.

In the hope, then, that, by a discussion of the matter, some light may be drawn out from some quarter, "I'll mention some of the things that have at one time or another been thought to have a bearing. Perhaps the majority who have any opinion at all on the subject would say something like this: "The trouble with the cellar is the long confinement. Bees outdoors have an occasional fly, while at such times bees in the cellar must remain in the hives." It seems there ought to be some truth in that, for we know very well that in the spring a colony standing outdoors affected with diarrhea will often succumb if the spring is long and cold, giving the bees no chance whatever to fly; whereas, if a single warm day comes, giving them a good cleansing flight, they're then ready for another long pull.

If that's the right view, then, in few words, bees have a chance for flights outdoors that bees in the cellar don't have. How shall we meet this difficulty? It seems quite plain—carry out the bees for a flight every time those outdoors fly, and then carry them into the cellar again. Other things being equal, the cellared

bees ought to come out best in the spring if they are thus carried out, for they have a milder winter; and I think we all know that, the milder the winter, the better for the bees.

Just at this point, a friend at my elbow says, "Yes, that would be a lovely job, to carry the bees out and in every day they can fly!"

"Never mind the lovely job," I said; "if we can make them winter perfectly in that way it might pay."

"But they wouldn't winter well that way. It would stir them up every time they had a fly, making them uneasy, and they wouldn't be contented to stay in after they had been out. I don't believe it would be a good way at all."

And she spoke with such earnestness that I think she had some fear lest I should contemplate carrying out bees every mild day, as part of the regular program.

"But," I said, "the bees outdoors fly without disastrous consequences, and we don't try to keep them in the hives for fear they become uneasy; why isn't it the same in one case as the other?"

"They're not shut up—they're not shut in—they can fly when they want to."

"Why, they're shut up just as much in one case as in the other. Indeed, if there's any difference it's in favor of the cellar bees: for, on the whole, they're the warmer, and the cellar bees can fly when they want to just as much as the others, if we carry them out every time it's warm enough."

Silence was the only reply to this for some time; and then, woman-like, she turned on me with the remark, "Well, if that's the best way, why don't you make a practice of carrying them out and in? I don't think it is a good way."

I think it is generally agreed that it is not a good plan to carry bees out of the cellar until they are ready to stay out, and I think the idea is correct; but I confess I'd like to know why. Who can tell?

If, then, it's true that, by letting them have the same flights that they would have outdoors, they still can not stand the same cold, we come back to the old question, "Why?" Is it an occasional warming-up that they get outdoors, not enough for a fly, but still warmer than in the cellar? G. W. Demaree advocates occasional raising of the temperature in the cellar, and the plan looks reasonable; but after trying it one winter, I have less faith in it. Possibly it may be all right in Kentucky.

The only thing I can think of as a possible explanation is the difference in the air. Mind you, I don't know about it, but I'm searching for a clew that seems to give a little promise. I know we are told that bees don't need air; that you can get plenty for their use through a stone wall, and all that sort of thing. I don't believe a word of it. I feel sure they need some air, and I believe they're better off to have plenty

of it; and the purer the better. Do you think the air of a cellar averages as pure as that outdoors? Do you think a person who lives in a cellar is as strong and healthy as one living outdoors, even supposing one had the same light as the other?

I believe it is a well-known fact, although not so universally known as it should be, that, in a room where the air is close and impure, the thermometer must stand higher to keep the human occupants warm than in a room with fresh pure air. Is it not reasonable to suppose it may be the same way with the bees?

I'll tell you one thing that I have already mentioned, and I have noticed it many times. Along toward spring there come warm spells when the air outdoors is as warm as or warmer than it is in the cellar. The bees become very uneasy and noisy. At night I open up doors and windows, letting in a flood of fresh air. The noise in the cellar increases threefold; but by morning all is quiet, and sometimes the full light may stream in on the hives through the forenoon without their stirring out. It isn't because they are cooled off, for the thermometer in the cellar has gone up. Moreover, I have sometimes accomplished the same purpose by putting a fire in the cellar. You see, in the cold weather the heavy cold air from the outside forces its way in; but when the air in the cellar is as cold as or colder than outdoors, then ventilation stops, and the air becomes foul. The point is, that the bees are uncomfortable, and hence inclined to disease when the air in the cellar is more impure than usual.

Now, I don't know that the impure air is the whole reason why bees in the cellar must be kept warmer than outdoors; but I suspect it has much to do with it, and I'm ready for any light that comes.

The moss you speak of is, I suppose, sphagnum or nurseryman's moss, and is highly esteemed in Germany. I think you will like it.

Marengo, Ill.

WAX.

A DESCRIPTION OF THE PRINCIPAL KINDS, AND THE USES TO WHICH THEY ARE APPLIED; SUBSTITUTES FOR BEESWAX.

By Karl Rudolph Mathey.

[In presenting the following papers on the subject of wax, we believe we are giving our readers much of value and interest. The author, Mr. Mathey, who is now one of the staff of workers here at the Home of the Honey-bees, has written considerable for our columns during the last year or two. He has paid particular attention to the subject of wax, and appears to be unusually well informed in regard to it. He has quite a nice little library devoted to that subject, all in German, as that is the only language he uses here, and the one in which he writes his articles. The interest belonging to the subject will increase as the articles appear.—ED.]

Honey and wax—two natural products which, in their pure state, are obtainable from bees only—have, from the earliest dawn of human history, played a *role* of the highest importance in human economy. The Bible mentions milk and honey as typical of all earthly blessings. The Greeks and Romans flavored their wine with honey; the ancient Germans prepared their intoxicating mead from it; and in a time when men had neither sugar nor syrup, honey served exclusively as a sweet for their food and drinks.

Wax, on the other hand, was the only illuminating material for God's house and for palaces; and it found special application for pharmaceutical purposes; and for thousands of years the product of the bee had no competitor.

But now this is all different. A whole list of fats, partly from the animal kingdom, partly from the vegetable kingdom, and some (at least apparently) coming from the mineral kingdom, are, with the help of modern science, chemistry, and other adequate agencies, so manipulated as to resemble pure beeswax to such an extent as to be very deceptive. Yea, so well is this work done, that, for certain practical purposes, such as illumination, etc., the compound may be considered as perfect.

As these species of artificial wax, such as ceresin, paraffine, ozokerite, and all such mentionable products of human manufacture, can be, for the most part, furnished at an insignificant price, it follows, as a natural consequence, that pure beeswax must become greatly depressed in price to meet the price of the others. We get now hardly as much money for two pounds of beeswax as we formerly did for one.

Wax was already known in the earliest antiquity. The Greeks and Phœnicians were acquainted with its use, and knew how to bleach it. Pliny called white wax "*cera Punica*" (Phœnician wax); he describes the framework upon which the sheets were laid to bleach; and he even describes the cloths with which the frames were protected and the wax covered during unfavorable weather.

In the time of Dioscorides, sheeted wax was known. The bottom of a pot was first dipped in cold water and then in melted wax; or a globe, likewise moistened, was dipped in wax. The sheets, or films, when removed, were strung on threads so they would not touch each other; and after copious washings they were set in the sun. At that time, illuminating material prepared from pure beeswax brought a high price. It was used in divine worship, and its consumption increased in proportion to the spread of Christianity. Even to-day the Mohammedans use wax tapers in their mosques. I saw such in the Aya Sophia, in Constantinople, at the right and left of the *mimrab* (prayer-niche), each taper being about 19 inches thick and 13 feet long. A similar one, was in the mosque of the Sultan Achmet.

In former years, wax-bleaching was carried on as an independent business; and its extension may be inferred from the fact that, at the end of the seventeenth century, there were fourteen wax-bleaching establishments in Hamburg. In fact, except oil and tallow, and the inevitable pine shavings, no illuminating material was known but wax; and this, only the rich could use. At that time, even princes who indulged in this luxury (according to the conception of those times) were held to be spend-thrifts. Besides for candles, wax had a further use in the manufacture of artificial flowers and fruits, which were used as room ornaments, for at that time the use of sealing-wax and other kinds, for that purpose, was not known.

Besides beeswax we are now familiar with a list of vegetable fats which more or less resemble it, known by the common name of vegetable or plant wax; in addition to which has been recently added mineral wax—ozokerite—which, when refined, is known as ceresin, which is used to a great extent in the adulteration of beeswax.

Wax is still used nowadays for illuminating-purposes in divine worship, not only by Christians but by Jews. But the Orthodox Greek Church makes the most conspicuous use of it. It serves, also, for a number of technical, medicinal, and artificial purposes; and in spite of the diminished production of wax candles, beeswax alone will not supply the need of wax, as the different kinds mentioned allow of a wide use of that substance.

Continued.

T SUPER VS. SECTION-HOLDER SURPLUS ARRANGEMENT.

WHY THE A. I. ROOT CO. RECOMMEND THE LATTER.

By Dr. C. C. Miller.

A question is asked me on p. 215 that I shall be glad to answer as well as I can. It is about T tins; but in introducing the question a statement is made, or at least implied, over which I have pondered—"So few, comparatively, use T tins now." Now see, Mr. Editor, whether I give an entirely fair paraphrase of what you meant to express. "There was a time when T tins were much used, but not now. Section-holders are better than T supers, and are now taking the place of the latter." I should really like to know just how much truth there is in that. Are T supers less used than formerly? Can you give us the names of practical honey-producers who have thrown aside T supers for section-holders?

You may say that you know section-holders are taking or have taken the place of T supers, because you now sell many section-holders and scarcely any T supers. If you should tell me that about different kinds of sections, I should at once see the weight of the argument, for it would tell me about the preferences of bee-

keepers in general; for bee-keepers who use sections are continually buying new ones. But those who use T supers do not need to buy new ones, and so their lack of buying doesn't prove they think any less of T supers than they did. I don't expect to buy another T super as long as I live; but my not buying them doesn't prove any thing about my preference. Now, if you say to me, "We sell a great many section-holders to those who have used T supers and have cast them aside," I shall, in all fairness, have to admit that, for such persons, with their present knowledge, section-holders are preferable.

But who are the purchasers? As surplus-honey arrangements last a long time, a large portion of the purchasers will be beginners. The beginner looks to you for guidance; and you say, in very plain print, "We consider the section-holder arrangement for holding sections on the hive superior to any other." That settles it for him, and you take his purchase as a proof that section-holders are best. It doesn't prove any thing of the kind: it only proves that *you* think so, and that the beginner has confidence in your judgment. Other purchasers are those who are still increasing their requirements and need more supers than they now have. Such a one will say, "I want the best that's to be had. Mr. Root says it's the section-holder. He's so thoroughly reliable that I'll trust to him and get section-holders." Very likely he'll make an improvement, for he may be using something not nearly so good as section-holders; but if he has been using the T super, and finds on trial that he doesn't like the section-holder so well, it is not at all certain he will promptly make it known; and in any case, the fact still remains that he has increased the sale of section-holders without preferring them.

There are those—I have your own word for it—"there are those who have used the T super so long, and to the exclusion of all others, that they are not easily persuaded to use any thing else." Now, why? I suppose you include me in the number, and I suppose that I adopted the T super for the same reason others did—at least some others—because it was better than what I had been using. Would not the same reason make me change from T supers to section-holders that made me change from wide frames to T supers? I think I made a pretty fair trial of the two side by side, and, like the others who are stubbornly holding on to the T super, I did so because I believed it best.

Please remember this: The friends of the T super are not likely to say any thing about your preference. Take my own case. Personally, what difference does it make to me what you think about it? I have all the T supers I need; and if others buy section-holders, it's nothing to me. If you should try to rule out the kind of sections we prefer, then a howl would be raised because we should be stopped from getting what we wanted. But booming section-holders

doesn't touch in the same way, so nothing is said. But try to take away T supers, and then you'll hear something.

You will probably say I'm prejudiced. Why should I be? I've changed before; and unless I should die young I expect to change again. I am on the lookout for something better than the T super, and then I'll change to that. But it will hardly be the section-holder, for I have tried that and don't know of a single feature it has better than the T super. Can you name one? Now, instead of its being all prejudice that makes some stubbornly hold on to the T super, is it not possible there is some prejudice on *your* part? While giving you credit for none but the best of motives, I sincerely believe you are misleading those who look to you for guidance, and using your powerful influence in favor of an inferior article.

And now that I've made a good deal longer introduction than you did, I'll answer your question. Let us look at the points in the T tin proposed on page 215. Friend Anthony says, "The points 2, 2 wouldn't form cutting edges for hands and fingers, and would never become bent out of shape as much as the old kind do." I've no trouble with their bending out of shape with fair usage, and the duller edge would be had at the expense of nearly 50 per cent more tin; and, worse still, it would perceptibly raise the sections, making a larger space between top-bars and sections, and the bees would do a worse job of propolizing on this rounded edge than on the sharp edge of single thickness.

He thinks it would be a good thing to avoid "the rounding at the point 1" and have the sharp edge of the tin there. Well, my first T tins were all made that way, and I am still using them by the hundred. An objection to them is, that the sharp point 1 catches on the sections as you put them in the super, especially the last sections. There is much less trouble about the section catching on the rounded edge.

Now to come directly to your question, "Is a thickness of $\frac{3}{32}$ any worse than $\frac{1}{16}$?" Not a bit. It's just as easy, and a little easier, to close the larger space, for a thin piece hasn't as much stiffness to allow its being wedged in. You say, "If we could reduce it to nothing it would be desirable." No, it wouldn't, begging your pardon. Try once filling sections in a super where there is no play; and if you've quit swearing, there may be danger of a relapse. I want full $\frac{5}{8}$ of an inch play, then the three little top separators $\frac{1}{4}$ inch wide, and a shade less than $\frac{1}{8}$ thick, can be forced in and make a snug fit that would be utterly impossible with no play whatever. Whoever tries the two kinds of T tins side by side will, I think, prefer them as the Roots now make them.

Marengo, Ill.

[Your paraphrase of the quotation from my footnote does not quite give it as I would have said it if I had been enlarging upon it. T supers formerly had the lead; but they were not very well adapted to the Dovetailed hive, without making supers of different lengths from the regular hive-body. As the single-tier wide frame was very popular, and is now, and probably always will be, and as it seemed to have all the advantages of the T-super arrangement, and some peculiar to itself, we adopted it, but left off the top-bar. This omission, we find, had been begun by others before us. We give customers the option of the two kinds of super; but if they do not know what they want, we recommend the section-holder arrangement. We boomed the T-super arrangement in our 1895 catalog harder than ever, putting in a nice wood cut. But our packers hardly know what it is.

You ask me to give the names of those who have thrown aside T supers for section-holders. This I can not do. Why? I can best answer by making a quotation from your article above, wherein you say, "I do not expect to buy another T super as long as I live." The reason is, you have enough for your requirements, and you could not afford to throw them away for something perhaps slightly better. Now, then, if there are hundreds of other T-super men in the same fix, it is not likely they will discard their arrangement for the section-holder device; but we have had in times past a good many letters stating that they preferred the section-holders to the old T supers, but could not change for the reasons already given. I could not give you the names, because I was not then interested, and did not preserve them. The fact is, doctor, you have become accustomed to the T super (and it certainly is one of the very best arrangements), and your habits of working fit it better than any thing else. I have said before, there is a good deal in getting used to a thing. For instance, I know of some women who would not change their old cook-stoves, true and tried, for all the new-fangled stoves in the market. They have become accustomed to them, and know just how far they can go without burning their bread. They have become used to the swing of the doors, the position of the reservoir, the handling of the griddles, and yet nine judges out of ten would say their old stoves were very much inferior to the new ones. There, doctor, I do not mean to say you are an old fogey, and have become wedded to your old arrangement; but honestly now, doesn't the stove illustration *partly* fit your situation?—ED.]

MORE QUEENS SAFELY TO AUSTRALIA.

I beg to announce the safe arrival of the two queens by September mail. I should have written you before, but I have been very busy. All the bees except the queen were dead in one cage: queen and all the bees alive in the other. Candy was in a good state of preservation. Bees commenced comb-building in the one all were alive in. My friend Edmunds informs me to-day that two out of three queens forwarded to him arrived all safe on the 16th of this month, so that you are much more successful this year than last, in so far as this district is concerned. I find your queens and progeny produce splendid honey-gatherers, besides being very gentle and prolific — all the advantages required by any bee-keeper. Your queens should command ready sale. It seems all that is required is safe mailing to Australia, when no doubt you would obtain many orders from Australian bee-keepers.

JNO. GARDNER.

Hurstville, Sydney, N. S. W., Oct. 27.

RAMBLE 131.
IN LAKE COUNTY.

By Rambler.



WHEN we rounded over the hill that looks down upon the little straggling town of Lower Lake we could see no signs, even, of a lake far or near. When we were putting our camp in order, an inebriated Dutchman came shambling along, and I asked him how far it was to the lake. He blandly

replied that it was 12 miles.

"There, Wilder," said I, "I told you there was no lake near us. How many rivers, creeks, and lakes we have crossed that have had no water in them!"

When we had our camp all set, and horses picketed out, we discovered we were in the next yard to a winery. That accounted for the drunkenness of the Dutchman. The poor fellow lost his hat and his bundle, and lay beside the fence as stiff as a poker for several hours. This was another object-lesson showing the beauties of wine-drinking.

Our next socially disposed visitor was an old resident of Lake Co., and in age he was an octogenarian, his silvery locks falling over his shoulders; his bent form and staff reminded one of an ancient prophet. He informed us that only an arm of the lake projected into that portion of the county, and it was only a mile and a half away. Our venerable visitor being an old resident, and having filled various offices of trust, he, in true California style, extolled the many good features of Lake Co. He said but little about its being the Switzerland of America; but he said, in a half-serious way in relation to the healthfulness of the country, that no one ever died in Lake Co. If they wished to shuffle off the mortal coil they would have to go over into Napa or Mendocino Counties. He gave us the average death-rate, and it was only 1 in 114, and this was not a very good day for death-rates either. He was thoroughly posted otherwise in relation to the statistics of the county, and informed us that there was plenty of room for settlement, as only a tenth of the land was occupied. The hills and mountains produce the best of fruits, while the valleys were adapted to grain and stock raising.

There were but few signs of apicultural pursuits, and the country so far had the appearance of scant honey-bee pasturage. We had observed, however, several familiar eastern honey-plants. Here was a patch of heartsease; then a sprinkling of sweet clover; here a fine

field of buckwheat, and mulleins. Their tall stalks and yellow blossoms transferred our thoughts in an instant to the old back pasture-lot in Eastern New York. Mr. Wilder inquired of our neighbor the fruit-rancher and winery-owner if there were any bee-keepers about.

"Yes," said he, "there's one just out at the other end of the town—Mr. Shires."

I resolved to spend at least a portion of the evening with him, and made tracks for his residence. I broke in upon him just as he was finishing his supper. Of course, having supplied the wants of the inner man, he was in a good humor, as all good men are upon such occasions. I found him a progressive bee-keeper, well acquainted with the reputation of A. I. Gleanings and the Rambler, and his greeting was cordial. Allow me to introduce Mr. Z. P. Shires. Mr. S. is not a very tall man, but he has much steam-engine about him. He is a married man, and has a swarm of seven children—four boys and three girls; and although he has so many strings to hold him down to one location and a steady occupation, he is quite a Rambler. He was born in Tennessee, had lived in Florida, Alabama, Texas, Washington, and California. Even now in this glorious Switzerland of America he showed some signs of discontent, and thought of moving to Upper Lake; and if that did not suit him he would go back to Alabama.

Mr. Shires is a very enthusiastic bee-keeper. He had been in his present location only eight months; but in that time he had cut down 60 bee-trees, all of them within two miles of town, and many in town. From the 60 colonies thus obtained he had saved 54, and had them nicely at work in Langstroth hives of his own construction. I visited him Aug. 26th. Since February, say a little over six months, he had cut the trees, transferred the bees, and, in addition to building the most of their own brood-combs, they had made a good amount of honey in 1-lb. sections, and his sales of the same had amounted to \$96. The bee-trees would sometimes yield a wash-tub full of honey. One colony occupied a cavity 6 inches in diameter and 14 feet in length. His bees were then, Aug. 26, at work upon honey-dew on the oak.

Mr. Shires described a remarkable feature of the country in the fact that, at certain seasons, honey-dew comes in veritable showers. The dew is seen to drop from the sky—not only seen, but felt on the clothing, and it covers all manner of vegetation with a sticky substance. The bees work upon it with great energy, and the quality of the honey is good.

There were but few bees kept in the Lower Lake region, and the persons who owned them had a mortal dread of the moth-miller. Mr. S. thought if they knew a little more about bees they could easily manage the pest. Foul brood is unknown here, and we hope it will continue so to be.

Like all of California, the spring months gave an abundance of flowers; but in June there is a short time of scarcity which sometimes endangers the life of the colony unless closely watched and fed.

At Upper Lake much alfalfa is grown, and Mr. Shires had an idea of moving to that locality, where he thought a greater amount and better quality of honey could be produced; but there is no better evidence needed to show the abundant honey-flow of this locality than the number of bee-trees.

In the morning Mr. Shires came over to our camp with a nice basket of fruit and some samples of his comb honey; and, how opportune! We had ceased to say, "May the shadow of Pryal never grow less," for the honey he gave us was all gone; and now we changed our opinion, and thought that the Shires shadow ought never to grow less; and how can it, with a swarm of seven children?

The objection to making a business of bee-keeping in this locality is its distance from railroad transportation. Mr. S. found sale for his honey in the home markets. We felt much benefited by meeting Mr. S., and were better posted in relation to honey-production in Lake Co. At the close of our fraternizing we turned our faces in our respective directions; and soon Lower Lake was a memory of the past.

Lake Co. is noted for its numerous mineral springs and health resorts; and, as a nativesaid, the country seemed to make a good share of its living off the tourist. We desired to do our share toward supporting the country, and resolved to take a turn among a few of these resorts.

At Seigler's Springs we found a fine hotel, many cottages, and tents; but owing to the hard times there were but few occupants. The sparkling waters reminded me much of the mineral waters of Saratoga, N. Y. We lunched at Seiglers, and then pushed on toward Adams Springs; a rough, stony, and steep road tried the mettle of our ponies, but we accomplished the journey without accident. I was pleased to note in many places by the wayside quite thrifty little fields of sweet clover. The bees were working upon it quite freely, and they were presumably from the surrounding trees, for there were no bee-keepers in the vicinity.

At Adams Springs the mountains closed in to a narrow gorge. Here we found hotel and stables, and numerous cottages. There was barely room for a road, and we nearly despaired of finding a camping-place. We did, however, find a little square spot large enough for our tent, and we decorated the side of the mountain with our wagon, blocked with stones, and our ponies hung, as it were, to the bushes.

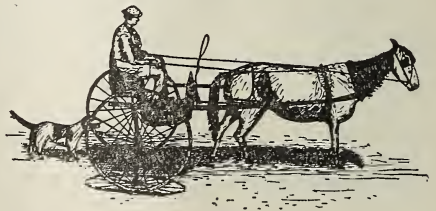
When we bade Mr. Pryal farewell in Oakland he partly promised to join us in Napa and enjoy with us for a season our travels and camp-life; but hearing no word from him we could only hope that he would follow on and overtake us.

We had been two weeks from Oakland, and his shadow had grown very dim, and here in this wooded country we had given up all hopes of his arrival.



MR. PRYAL'S UNSEASONABLE VISIT CREATES SOME ALARM IN CAMP.

We had retired, and were about to send up our somniferous orisons, when we heard a tramping of many feet up the narrow roadway—a lantern and a rough voice intimating that those hobo fellows had better get their tent out of that or they'd get pitched out. Our valiant Jack rushed out to the defense, and the parties halted. Mr. Wilder followed the dog to see what all the racket was about; and whom should he meet but our friend Pryal? It is needless to say that we gave this bee-keeper of Oakland a cordial greeting. He had been upon our trail for several days, and an extra push on the lines, and a late drive enabled him to overtake us. We gave him a soft corner of earth in our camp for his bed; here he rolled his blanket around him and soon forgot the toils of the day in sleep, with the rest of us.



MR. PRYAL AND HIS RIG SUSAN B. ANTHONY.

In the early morning we saw a sort of nondescript animal across the gulch, and Mr. Wilder was the first to exclaim, "Hello! Bro. Pryal, where in the name of the equine race did you get that hoss?"

"Eh? oh! That horse and cart is the property of the paper I represent—the *Pacific Rural Press*—best agricultural paper on the coast; only \$2.00 per year; circula—"

"But that hoss," said I, "what's the pedigree? What's the name of the animal, any way?"

"Well, gentlemen," said Mr. P., "she's a strong-minded animal, and her name is Susan B. Anthony. Her pedigree is from away back. She's the missing link between the donkey and the giraffe."

We all gathered around Susan B., and admired the various points of interest; and a snap shot will enable the more expert horseman to judge the ancient dame.



THE DIVISIBLE-BROOD-CHAMBER IDEA — WHOSE PROPERTY IS IT?

AN INTERESTING DISCUSSION ON PATENTS AND PATENT DECISIONS.

As announced in our last issue, we give space to both Mr. Heddon and Mr. Danzenbaker to reply to statements on pages 267, 268. Neither one has seen galley-proofs of the articles in this number, and so both stand on an equal footing. I desire, above all things, to give both an equal and perfectly fair hearing. To let one reply to either one of the two articles in the present issue, and not the other, would be hardly fair; but, as either one in a very large measure covers the points advanced by the other in this issue, it seems to me that further replies are unnecessary—at least in our columns; and I feel very sure that Mr. Heddon will grant space to Mr. Danzenbaker, if he so requests it, in his own paper, for the further discussion of the matter. As the latter's article came first we give it first. It is as follows:

Editor Gleanings:—I have neither time nor inclination for needless discussion, and I had hoped the world was wide enough for Mr. Heddon and the rest of us; but as he talks titles, laws, courts, and the sheriff, I desire the privilege of defending my position.

Mr. Heddon says: "My patent covers a divisible brood-chamber, used as and for the purposes specified in said patent." These purposes specified are the same as have been time and again written in bee-journals (by himself), in his circular and book; there is no mistaking it, and no getting around it. Dear reader, sometimes good men are honestly wrong. Two locomotives can not pass each other on a single track, and we can't both be right. The unsupported word of either of us can be weighed by all intelligent readers at their own estimate.

If friend Rambler, and others whom it may concern, will refer to the files of record in the U. S. Patent Office, showing the history of Mr. Heddon's case, they will find that he was not the first to invent and patent a multiple or divisible-brood-chamber hive, and has no legal or moral right to support his threats of prosecution, as he was informed at the time, when applying for his patent, in which he made a broad claim as follows: "7. In a bee-hive, a brood-chamber constructed of two or more horizontal, separable, and interchangeable sections." This clear-cut claim shows plainly his purpose; but it was rejected, with all of his ten claims except the 3d, by the Patent Office, as being *old and common rights*, and *were dropped* by his attorneys, and he

was restricted to *limited* and combined claims, as title-deeds are made subject to existing incumbrances. The Patent Office, by these limitations, expressly reserved what it had already granted to others. Mr. Heddon had to confine his claims to a construction of bottom-board, break-joint honey-board, and a case with thumbscrews through its sides, and cleats in the opposite corners, expressly limited, showing that the cases, cleats, frames, and screws, all old and common, were combined to effect his purpose, which defines and limits him to using these things as described, but does not prevent others from using any of them in other ways for the same purpose; and he is debarred from interfering with others using what the records of his own case show were denied him, and yielded absolutely by him at the time of his application. Numerous and recent decisions of the Supreme Court can be cited, showing the fallacy of Mr. Heddon's pretensions, as in the two cases below:

Sargent vs. Hall Safe and Lock Co.
114 U. S., Judge Blatchford.

"In patents, for combinations of mechanisms, limitations imposed by the inventor, especially such as were introduced into an application after it had been persistently rejected, must be strictly construed *against* the inventor and *in favor* of the public, and looked upon as in the nature of disclaimers."

In case *Keystone Bridge Co. vs. Phoenix Iron Co.* 95 U. S., 279, S. C. said: "As patents are procured *ex parte*, the public is not bound by them; but the patentees are, and the latter can not show that their inventions are *broad* than the terms of their claims; or if broader, they must be held to have surrendered the surplus to the public."

What if Mr. Martin does say, "In making my frame close fitting, and also to the case, the combination is clearly an infringement upon the Heddon claim"? If Mr. Heddon had such claim (but the history of his case shows clearly and distinctly that it was denied him, *as old and a common right*), neither Mr. Heddon nor myself have been allowed to fence it off from the public, and we can not honestly claim it.

Mr. Heddon's objections to the sheet-metal lining and frame support have never been made by others who have seen my hive. This sheet metal does not warp, shrink, nor swell, and is covered over between the uprights and cases, insuring a uniform bee-space, with slack enough to press lightly against the uprights, and yielding enough to avoid jamming, if the frames swell. This end play is a decided advantage over the Heddon hive. They can not be glued to the case by the bees, and are easier to empty than a T super when full of either frames or sections. I first made and used it in place of the T supers, having never seen a Heddon hive until several months after I got my patent, although I had seen the drawings.

If Mr. Heddon's claim did cover the close fitting of the upright to the case, my hive would not interfere with that claim as they do not touch the case at all, but rest and bear against the metal support that hangs upon the case, and it can be used in other styles of hives. My claim is a broad one, without limitations, as I am at this date the first inventor of it. No set-screws are needed to secure the frames tight and solid in position, as they can now be carried bottom side up if need be, and they can be wedged up or set free with a plain gouge chisel, with half a turn of the wrist.

While apparently resembling the Heddon hive, mine does not use his style of frame or section. It is furnished with the exact style of top and bottom barred brood-frames and the prize sections, oblong in shape, used by Capt. J. E. Hetherington, of Cherry Valley, N. Y., which, after a careful test, I find the best in use, as 25 per cent. more of them will go on the same hive-space, and they sell for 5 to 10 per cent. more in market. Mr. Martin says such hives are well adapted to California, and he writes me that he likes my ten frames and sections better than the longer and shallower sections, irrespective of any claims as to infringements.

Mr. Heddon puts much stress on "the state of the art to which an invention belongs at the time that invention was made must be considered in construing any claim for that invention." When he invokes this, let him *not forget* that nine of his ten claims *were rejected as old, and common rights*, and his patent is only a combination of cases, cleats, screws, frames, sections, *all old*. Where is the invention?

Functions! whatever that may be, it is too esthetic. You might as well try to patent a purpose or a principle which is as free as God's pure air and sunshine that he designs for all. Patents must define constructions or fixtures so clearly that one skilled in the art can make them. The venerable Langstroth may have been robbed of his just rights; but you, Mr. Heddon, are secure; it is impossible to rob you of what never belonged to you, either before or since the Patent Office rejected your claims, and you have accepted what you could get, like the rest of us.

There is no patent court of equity that was established in 1870, or any other time, different from other courts for patent-cases. Equity courts originated during the reign of Richard II., and come to us from our earliest history, your assertion to the contrary notwithstanding. If I am trespassing on your legal rights, I will gladly surrender; but as we can not think alike in this case, I will agree to abide by the decision of three reputable judges, each of us to choose one, they to select the third. Until you do this I declare publicly, as I well know, that my patent does not infringe any claim of yours, neither legally nor morally.

Mr. Heddon's reference to a bundle-carrier impales himself exactly. The other fellows had been there nearly a score of years ahead of him, which he knew then and now, as the records of the Patent Office in his own case clearly show that he mutely submitted at the time.

The limitations of Mr. Heddon's claims absolutely prevent him from interfering with others using what was denied him. He certainly can not claim more than his title calls for, any more than a squatter on a quarter-section could claim the State. As for management, his circulars show that he has revised it materially since he set out, and I prefer a very different one for myself.

Washington, D. C.

F. DANZENBAKER.

In order that the reader may more clearly understand just what Mr. Heddon's patent, dated Sept. 29, 1885, does or does not cover, we reproduce his five claims. They read:

1. In a bee-hive, a case consisting of a frame one of the sides of which is provided with thumb-screws extending through said side, and the opposite side of which is provided at the corners with narrow cleats facing said thumb-screws, substantially as and for the purpose set forth.

2. The combination of the bee-hive, the bottom stand having end pieces of less height than the side pieces, and the detachable bottom-board, the ends of which are provided with downwardly extending cleats resting upon the end pieces of the bottom stand, and the upper side and rear edges of which are provided with cleats adapted to support the lower case of the hive and afford admission-conspire for the bees, substantially as and for the purpose set forth.

3. In a honey-board for bee-hives, the combination, with a frame, of a number of slats secured to the bottom sides thereof at a bee-space distance apart, said frame being even with the bottoms of said slats and projecting a bee-space above them, substantially as and for the purpose set forth.

4. In a bee-hive of the described class, the combination, with the brood-chamber of a hive the tops of the frames of which are a bee-space below the top edges of the hive, and a case for surplus honey, the bottoms of the frames of which are even with the bottom of the case in which they are secured, said frames for surplus honey hanging parallel with and directly above the frames of the brood-chamber, of a honey-board consisting of slats secured to a frame, said frame being even with the bottoms of said slats and projecting a bee-space above them, said slats being so arranged that the spaces between them will be between the tops of the frames in the brood chamber below and the bottoms of the frames in the case above, and the slats themselves will be parallel with the frames, and the bottoms of the frames of said frame, substantially as and for the purpose set forth.

5. In a bee-hive, a brood-chamber consisting of a series of reversible and interchangeable cases, each of said cases being provided with thumb-screws extending through one side and with cleats at the corners of the other side and facing said thumb-screws, and of a number of reversible frames rigidly secured therein between said thumb-screws and cleats, and a stand and cover, substantially as and for the purpose set forth.

In testimony that I claim the foregoing as my own I have hereunto fixed my signature in the presence of two witnesses.

I have since obtained copies of patents No. 33,668, 196,060, 203,890, that are said by the attorney of Mr. Danzenbaker to antedate Mr. Heddon's claims of the divisible-brood-chamber hive. We can scarcely afford to give room to the whole of the patents in question, but we make extracts touching upon the points at issue, so far as they concern the novelty of a horizontally divided brood-chamber. Patent 196,060, bearing date Oct. 8, 1877, by J. C. Train, makes the following claims:]

1. In a sectional bee-hive, the combination, with each of the sections thereof, of two or more fixed partitions, G, and a corresponding number of comb-supports, H, removably secured to the fixed partitions, substantially as described.

2. In a sectional bee-hive, the combination, with the lower section having grooves or mortises formed in its lower side edge, of a hinged bottom substantially as set forth.

3. In a sectional bee-hive, the sections formed with two upper edges provided with tenons and two with rabbets, the inner edges of which are cut away to afford bearings for the comb-supports G and H, while the lower edges are formed with two mortised edges and two rabbeted edges, in combination with such supports, substantially as set forth.

[Two paragraphs in the descriptive matter also read as follows:]

My invention relates to an improvement in bee-hives, the object being to provide a bee-hive of such construction that it may readily be adjusted in size to meet the wants of either large or small colonies of bees, and the several sections removably secured together in a water-tight manner, to exclude moisture and dampness from the interior of the hive; also, to provide space in the lower portion of the hive wherein the moths may collect and be removed therefrom without disturbing the bees.

It is evident that any number of sections may be employed, and a complete hive secured to the apiarian at all times, as, in case the honey is to be removed from the upper section only, the upper section may be removed entire, if desired, and any number of sections or sections of the hive sections are made to accurately fit each other, a complete and water-tight hive is thus secured.

[Patent 36,668, dated Nov. 5, 1861, by H. R. Terry, contains these paragraphs in descriptive matter:]

My improvement consists in constructing the hive in horizontal sections, fitted to a suitable base and provided with a top, which forms a roof or cover, each section being separate from the others by series of slats, and connected together when in use by hooks or other equivalent fastenings, which admit of the ready detachment and removal of any one of them.

The sections are three or four inches in depth, which permits the formation of combs, which are suspended from the upper series of slats. Each section is provided with a slide, P, covered with a slide, to admit of the inspection of the bees while at work. These sections being readily removable, any one of them may, when filled with new honey, be changed for an empty section, thus taking the place of honey-boxes, and any number may be added to increase the capacity of the hive and adapt it to the size of the swarm. By this means the troublesome method of transferring the bees from a smaller to a larger hive, and vice versa, is entirely dispensed with and much time and labor saved.

[Patent 203,890, under date of May 21, 1878, shows a series of shallow cases containing regular frames over the brood-nest. The only claim under this patent is for a brood-chamber having concave or arched sides.

Patent No. 2592, dated April 29, 1842, shows a series of shallow chambers fastened together with bolts. They were simply shallow boxes, I judge, without brood-frames or any thing of the sort. There is no printed descriptive matter.

Patent No. 2929, dated Jan. 27, 1843, by J. Harris, contains a similar series of horizontally divided hive-sections, one piled upon another. These, like the one just preceding, contained no brood-frames, as a matter of course.

If any one is interested in following these up further, he can secure them by applying to the Commissioner of Patents, Washington, D. C., giving the number and dates as above given. It will be necessary to inclose 15 cts. for each patent called for. Stamps are not accepted.

Possibly our readers would like to have me enter an opinion (inasmuch as I have studied the patent question to some extent) as to whether the patents above cited would cover the divisible-brood-chamber idea specified in Mr. Heddon's patent. Such a statement as I should feel like making, I am sure, would please neither party; and I therefore prefer, for this and other reasons, to take no sides at all, as I take it that our readers are intelligent enough to decide the merits of the case after comparing the claims of Mr. Heddon's patent with those above cited, and reading his article.

As Mr. Heddon seems to be pretty well acquainted with the patents above given, the references that he makes to them, and his reply thereto, will probably cover what he desires to say concerning them in the article that now follows:]

REPLY TO ATTORNEY WILLIAMSON.

Infringement, or desire to infringe, are, either or both, prima-facie evidence of utility.—WALKER.

Bro. Root:—I have this day discovered Mr. Danzenbaker's attorney Williamson's attempted defense of his client's infringing live (not patent), in your Trade Notes in April 1st GLEANINGS. While I regret that you should have printed such a communication, and also that two weeks should elapse before the sophistry could be shown up, I am pleased at your editorial remark that "both sides shall have a fair and impartial hearing."

Mr. Williamson is in the position of a paid attorney, and we all know what that means. It is no reflection upon the gentleman's character, to infer that he deems it a moral duty to carry the point desired by his client, right or wrong. Now, Mr. Williamson is discussing a subject before an audience of bee-keepers, not one in fifty of whom have sufficient knowledge of the same not to be misled. The members of this audience have been compelled to devote their time and intelligence to other matters; but these other matters have cultivated their inherent logic; consequently, it is more in this line than strictly in the line of patent law that I shall reply to the learned attorney. My own knowledge of patent law enables me to answer definitely and successfully every point raised by Mr. W.; and, in fact, my article preceding it, and the paragraphs from Walker's Patent Law, found in my 1890 circular, do most completely answer every point that he brings up; and these I commend to those of your readers who may understand patent law as well as or better than I do myself; but this article I shall confine principally to the illogical position of Mr. Danzenbaker and his attorney, believing it will be the better understood by our just and logical bee-keepers.

Allow me to call the reader's attention to the fact that Mr. Williamson makes no mention of patent law in equity. He speaks of my natural or "moral rights" as though he had seen a proof of my foregoing article. If Mr. Williamson is given room for another article, I request you to mail me proof at once, when I will have my Washington attorney append a reply to the same, which will unquestionably end all discussion on the legal aspect of my right to my earnings as an apicultural inventor. No one knows the state of the art so well as bee-keepers; such students of our literature as Prof. Cook, Hutchinson, Clark, Mason (and, without taking further space, twenty other prominent bee-keepers), would never have proclaimed "new, original, unexcelled, a revolution," etc., were I now the owner of nothing of any value. If such could be true, of what use is our patent office? and of what service are our patent-solicitors? Such would be an everlasting stain upon Mr. Williamson's profession. My attorneys will undoubtedly be as anxious to defend the title to my property, a document of their creation, as Mr. Williamson is anxious to tear it down, as a paid attorney in the interest of Mr. Danzenbaker. They will undoubtedly be able to defend the right, especially as "possession is nine points in law." The misleading arguments of Mr. Williamson, made for the purpose of dispossessing me of my earnings, by claiming that there is a flaw in my title to the same, are an exact repetition of the Langstroth history; of the attack upon the natural rights of the man we have subsequently sainted as the bee-keepers' greatest benefactor. If it were true, that any of the features of the Danzenbaker hive, which belong to Mr. D. (claimed in his patent), were of any value, Mr. Williamson's line of argument would as completely rob Mr. Danzenbaker, could it be successfully carried out in the practice of bee-keepers, as it is intended to rob me.

I call your readers' attention to mistakes, both in statements and deductions, in Mr. Williamson's article, as follows: He says the two hives are similar in construction, *only* in the matter of divisible brood-chambers and top covers. That is not true. If Mr. W. knew aught of the state of our art, he never would have mentioned "top covers," and, further, would have known that the close-fitting frames, at the same time closely fitting the case, prior with me, was the second essential feature of my hive, and imitated by Mr. Danzenbaker. He asks if my patent contains any claim which by a "fair construction" can be held to be infringed by the D. hive. "Fair construction!" Here Mr. W. admits that patent courts take into consideration the matter of "fairness" in construing the breadth of a patent-claim, and by this bee-keepers may know

just where our suit at law will come out at the end of a damage-suit against Mr. Danzenbaker's customers. Of course, Mr. Williamson must say something, because he is paid for so doing. The above shows clearly that Mr. W.'s statement, that claim five of my patent is the only one that touches upon the features of construction common to the two hives, is a gross error.

Next, Mr. W. quotes a claim of my original application which was rejected by the patent office, but fails to inform your readers that it is wholly covered by the last eight words of claim five, which read: "substantially as, and for the purposes set forth." In answer to another misleading statement of Mr. D.'s attorney, let me explain that I never claimed to be the prior inventor of every kind of brood-chamber which could be divided "for the purpose of increasing or diminishing its capacity." I so stated in the discussion which arose relative to the Ekes and Nadirs of France and Germany. My claim is on a divisible brood-chamber containing frames; one capable of the manipulations of modern apiculture, for the purposes set forth in my specifications. What are these purposes? Not only to "contract or enlarge" the brood-chamber, but to alternate its upper and lower parts, to produce certain results in the surplus sections of the hive. Now let me quote to you from the great authority, Walker:

"Novelty of a thing is not negated by any other thing fundamentally incapable of the functions of the first."

"Novelty and patentability are not negated by the fact that every part of the thing is old."

"Novelty of any thing is not negated by another thing which was not designed or used to perform the functions of the first."

The above is a complete answer to Mr. W.'s misleading quibble regarding the revision of my claims, made to suit the Patent Office, and still holds as much before.

Now, Bro. Root, you say that you have sent for the three copies of old patents my attorney was cited to, as referred to by Mr. Williamson. Why, bless your soul, 22 citations were handed out by the examiners, and yet only three or four of them contained a single feature in any way resembling any part of my hive, and these were nothing fatal to the value of my patent. Firing at us irrelevant citations is a privilege of the examiners. These 22 copies I lost in the fire in Patent-Attorney R. B. Wheeler's office in Detroit, about four years ago. I have never replaced them, because they have no bearing against the title to my property, when rightly understood. I will ask one question, which, if bee-keepers can not answer in the affirmative, the argument based upon these citations falls to the ground. Are you willing to, and do you expect to use, the features and functions shown in these old patents, *as and for the purposes therein specified*? If not, what do you propose to do? What is it that is just now so greatly desired? Fill GLEANINGS from cover to cover with nothing but sophistical, misleading, and confusing discussions by patent-lawyers, and, in the end, down in the hearts of all honest bee-keepers will remain this verdict: "To Heddon belongs the practical, divisible brood-chamber, with its reversible cases and close-fitting frames closely fitting the case, as and for the purposes specified in his patent, and further explained in his book, Success in Bee Culture."

To close, I will say that I notice your statement, that you "take no side in the matter." I believe you should, and believe you will—not with persons, but with principles. I know that you know the property to be mine, all the time you are discussing the question of the technically legal title to the same; and I think it strange that, in your last issue, you confine yourself wholly to the matter of title, utterly ignoring the question of right *per se*. It seems to me that this is almost the only point the mass of your readers can understandingly decide upon, and upon that I know they are already decided. However, if you wish to educate us all in the details of patent law I will not be displeased, and my attorneys will be on hand promptly.

It seems to me that the matter stands about like this: Mr. Martin has voiced the sentiments of nearly all of our bee-keepers in proclaiming the fact that Mr. Danzenbaker's hive is a "gross infringement" on my invention. No one has ever claimed that I have infringed any man's rights. Nine years elapsed before any such claims as attorney Williamson's were made, because it required that length of time for Mr. Danzenbaker to discover the value of my invention. Why does not Mr. D. apply his patent-

claims to a hive-construction which does not infringe mine? (Remember that it is his *construction* and not his claims of invention that infringes.) I thank you for your offer to give us all a fair and impartial hearing.

Dowagiac, Mich.

JAMES HEDDON.

[Mr. Heddon indirectly asks whether a proof of his former article was sent to Mr. Danzenbaker's attorney. No such proof was sent; but I wrote to Mr. D., requesting that his attorney state whether Mr. H. had either a legal or a moral right to the divisible-brood-chamber idea, and hence Mr. Williamson's reference to the "moral right."

Whatever legal claims Mr. Heddon may or may not have, if he has, by these years of advertising, made popular a certain system—if he has been the first one to show the *world at large* that it may have points of merit, then he certainly has a kind of moral right—a right which I think bee-keepers will be quick to respect. Understand, I do not go so far as to say that he has or has not legal or moral right to certain hive-constructions. I could render an opinion, but, as I said, I shall adhere strictly to the ground of taking no sides. I can not do any better than to repeat the words of the great Master of all things, who said, under similar circumstances, "Render unto Cæsar the things that are Cæsar's." Naturally, after the severe way in which Mr. Heddon has criticised us in the *Dowagiac Times* extra, we should be inclined to take sides against him, but this should and does have nothing to do with the matter at all. I do not very often stand "on the fence;" but for the present, at least, I do not know of any reason why any of us here at the Home of the Honey-bees should desire to get on either side of said fence.—Ed.]

A NEW DEPARTURE.

"Trade Notes," a corner in which we poor inventors may blow our horns "with none to molest or make us afraid," as I see from the last issue of GLEANINGS. Now, that is "fair play," and we all like fair play—at least, for ourselves; we are not always so particular about the other fellow, I am afraid; so I will just trot out my hobby—a kind of hobby it is, the Crane smoker, which is henceforth to wear that little motto, "*Patented March 12, 1895,*" which witnesses that the United States government, through one of its departments, has carefully examined into my claims, and has pronounced them "new and useful," and that it is ready, through its courts, and, for aught I know, its army and ironclads, to defend them. My claims are very quickly told: An air-chamber situated between the fire-chamber and bellows, one end extending and opening into base of the fire-chamber, and the other communicating with the outside atmosphere, and a valve so situated as to open and close alternately this opening, so that, as the bellows closes, the valve opens, thus forming a continuous passage from the bellows to the fire-chamber; and when the bellows opens, the valve closes, thus giving a draft to the fire-chamber.

The advantages to be obtained are twofold—a strong blast, and the exclusion of smoke and sparks from the bellows; and when the smoker

is properly constructed I believe these advantages are fully attained.

So far as I know, the use of a jacket of tin completely surrounding and extending some way below the fire-chamber toward the bellows is original with me. I think it would be better if plain tin were used for this purpose, and small washers were used where it is riveted to the fire-chamber, so it would set out $\frac{1}{8}$ inch from it on the back, although it might not look quite so well then as now manufactured.

My claims were allowed some months ago; but for various reasons I delayed having it issued until the present month.

There are some obvious reasons why a new invention, or an improvement on an old one, should be patented, one or two of which I will mention: It greatly facilitates its introduction to the industrial world, and often enables the manufacturer to pay the inventor a fair royalty, and then, by manufacturing in large quantities, be able to sell them for even less to the consumers than would be possible if a large number of persons engaged in their manufacture without paying royalty.

J. E. CRANE.

Middlebury, Vt., March 22.



NON-SWARMING BEES.

Question.—Three years ago last June I purchased a queen of you said to be reared by the plan given in your book. This queen has done well for me; but the point of interest just now is this: Although she has kept her hive full to overflowing with bees, fully as well as any queen I have, yet only one swarm has issued from her colony since I got her. About the time I received her I purchased your book and reared a few queens in accord therewith. Very few of the queens so reared have led out swarms, and the bees behave very similarly to those from the queen purchased from you, while my other colonies have kept up excessive swarming each year. The queens not reared in accord with your book were reared under the swarming impulse, by colonies casting swarms, as are the most of the queens in any apiary where the bees are allowed to swarm. Now, I should like to know if you claim that queens reared by the plan given in "Scientific Queen-rearing" have a greater tendency not to swarm than those reared by the bees during the swarming season, as most bee-keepers allow their bees to rear them.

Answer.—I have never made the claim that queens reared in upper stories, over a queen-excluder, while the reigning queen was doing good work below, were less inclined to swarm than were those reared when the bees were pre-

paring to swarm, as I formerly raised all queens, then claiming, as many do now, that queens reared under the swarming impulse were the very best possible to raise. Some twenty years ago I noticed that queens reared to supersede a failing queen were less inclined to swarm than were those reared during the height of swarming, and so noted the matter on my diary; and during all the time intervening, since I first noted this matter, I have had no cause to change my first conclusion. Queens reared as given in my book are brought to perfection in very much the same way as are those reared when a case of supersedure happens; and I have noted that I have had less swarming in my apiary during the past eight years, through which time I have reared nearly all my queens over queen-excluders, than I formerly had; yet I would not think it best to put forth the idea that a continuation of thus rearing queens for a quarter of a century or longer would give a race of non-swarming bees. When God told all animated nature to go forth, "multiply, and replenish the earth," he implanted in the same a nature so to do; and if that nature is not carried out in bee-life, through the issuing of swarms, it will come about through the intervention of men, by way of such manipulation of hives as will throw the colony out of its normal condition, rather than by breeding for a race of non-swarming queens. At least, such is my opinion. I have received many letters similar to the above, relative to less swarming occurring since the parties writing had practiced the plan of raising queens as given in "Scientific Queen-rearing;" but it must be remembered that the past few seasons, taking the country as a whole, have been rather poor seasons, hence would be conducive to less swarming. Of course, there is no harm in watching this matter; but to put forth the claim that a persistent rearing of queens over a queen-excluding honey-board will bring forth a race of non-swarming bees would only end in disgusting those who went into such a trial with a full belief in the honesty of the one making such claim.

COLONIES LEAVING THEIR HIVES.

Question.—What is the cause of bees leaving their hives with clean honey, clean hives, and quite a quantity of brood, in the spring of the year? Three of my colonies have deserted their hives in this way on warm days; and although I have put them back they will not stay. What can I do to remedy this matter?

Answer.—This is a case of what is termed "swarming out" by some, and "spring desertion" by others. In an experience of a quarter of a century I have had about a dozen such cases, and in each one it has happened after a hard winter, such as the past has been, and with colonies which had wintered imperfectly. Some think it is caused by the bees becoming discouraged, and abandoning further effort to

keep up the temperature of the hive so as to keep the brood from perishing. In nearly every case which has come under my notice, colonies deserting their hive have become reduced as to numbers to a greater or less extent by spring dwindling; while the number of bees, compared with the amount of brood, was ill proportioned, considering the outside temperature. I used to think that such swarming out could be accounted for on the ground of lack of stores, moldy combs, etc., as has been told us many times in the different bee-papers of the past; but after having several swarm out when all was clean and nice, the same as is spoken of by our questioner, I had to give that up and conclude that those who had told us that such was the cause were mistaken. Some seem to think that the chief cause of this swarming-out mania lies in excitement on the part of the queen, the same happening at a time when few young bees are in the hive to keep company with the queen. When a general flight of the bees takes place, which often happens during the first warm days in early spring. During such occasions the queen becomes excited about being left with so few bees with her, goes to the entrance, takes wing, and sallies out to join the circling bees; and when once in the air with the bees the whole alight as a swarm. But I can hardly accept this as the cause, for the reason that, as our correspondent states, when we hive them back again in their own hive, they will swarm out again and continue to swarm out till they enter some other colony or go off entirely. As to a remedy, I doubt whether there is any better than to unite such with some other colony, although I have tried giving a frame of hatching brood from some strong colony to them, removing all their brood and giving it to the strong colony from which the frame of hatching brood was taken. Next, place this frame of hatching brood together with one frame of honey next one side of their hive, and confine the bees to these two frames by means of a division-board till they become strong enough to take more frames, when they are built up to full colonies. This is the plan I used to adopt with good results, where for from any cause I desired to save just that individual colony. Lately, since the queen-excluding zinc has become common I have simply hived back in its own hive the colony swarming out, and placed a strip of perforated zinc at the entrance, thus keeping the queen from going out, in which case the bees will return after each swarming-out; and if such colony so treated does not die by dwindling it can usually be saved in this way. But, as I said, unless for some reason you wish to preserve the individuality of any colony which once swarms out, the best thing to do is to unite it with some other colony, as the work required to make a good colony of such a discouraged colony amounts to more than any ordinary colony is worth.



THE RECORD BROKEN AGAIN ON DEER-SHOOTING BY A BEE-KEEPER.

On page 170 Mr. J. D. Given asks for a better record on shooting and killing game than he has. I will admit his score is good, and hard to equal. I used to think I was fairly good with the gun myself. I use a rifle instead of a shotgun. I have stood in one place and killed five deer with six shots. The gun was a single-shot breech-loader. The first shot I fired, the deer was about forty feet distant, and the last one was about 400 feet. There were only five deer in the band, all full grown black-tails. I have frequently killed three and four out of a band before they would get away. At another time there were four of us boys worked up to a band of elk. I killed three while the other boys got none. At another time there was a party of ten of us went on a buffalo-hunt. We killed 42 buffalo, 6 antelope, and 2 deer. I killed 39 of the buffalo, the 6 antelope, and 2 deer. I have fired 26 cartridges without missing a single shot, and with the same I killed not less than 10 tons of meat. Seeing this is not a sporting-paper I will let up; but we have bee-keepers here who have records all right. This shooting was done from 1868 to 1876. Use this if you see fit; and if you wish any more records I have plenty left, on up to killing Indians.

BUCKSKIN CHARLEY.

Aurora, Neb., Mar. 13.

[Among his other accomplishments "Buckskin Charley" is the inventor of a section-press and foundation-fastener that seems to have merit, judging from the engravings and description in a circular sent. Verily, is there any thing bee-keepers can't do between being legislators and breaking the records on shooting deer? By the way, I am interested in gunning. When I was sick last fall, and convalescing, the doctor prescribed the shot-gun and long tramps. I got both of them, but *game*—not any. Indeed, I "broke the record for the county" in missing every thing I shot at. May be if we had deer here I could miss them too.—Ed.]

SCORE FOR THE BEES.

At the Oregon Experiment Station, peaches were grown under glass, and forced, by artificial heat, out of their natural season. In such culture, it is necessary to pollinize the flowers by some artificial means—a brush or otherwise. This is very slow, tedious work. Bulletin 34 of this station tells what was done: "To save labor in transferring the pollen, some trees were sprayed when in full bloom with warm, others with cold water. This proved very unsatisfactory, more fruit dropping at the stoning period than in the case of trees pollinized with the brush. As a further experiment, a hive of bees was placed in the house when the trees commenced to bloom. This was in November,

and a heavy fog prevailed for 15 days; and although the flowers were constantly opening, not a bee showed itself. During the night of the 15th the fog lifted, and the next morning was bright and clear, causing the pollen to burst. Then the bees came from the hive and kept up their work for eight or nine days. The result was, that not a single peach was observed to drop at the stoning season. So great was the amount of fruit on the trees, that it was necessary to thin it. One tree in the house was securely protected, so that bees could not gain access to it, and all of the fruit dropped at the stoning period."—*Rural New-Yorker*.

THAT EUROPEAN AUTOMATIC SMOKER.

Mr. Chas. Norman, in "European Matters," talks about an automatic smoker. I inclose an

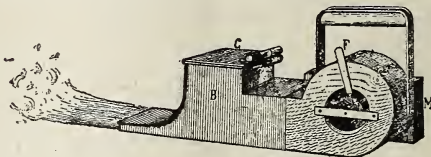


illustration. I don't think it will ever do for any "go-ahead" bee-keeper. Some one of my acquaintance having seen it says the automatic movement, produced by a kind of clockwork, is very noisy. My impression is against this smoker. You can judge for yourself.

Winter has been very severe in France; but our situation behind the Alps, in Nice, has kept away the fierce cold all our neighbors had to undergo this exceptional year. We had snow three times, though not to stay longer than a day or two. In Palestine my people want rain, especially in Jerusalem—very much exposed to east winds, which dry up every plant. Last year, 1894, was a very poor season here. I hope 1895 will be better. I didn't have one-fifth of my usual honey-harvest.

Nice, France. PH. J. BALDENSPERGER.

[The smoker is not reproduced because I think it practicable for this or any other country, but because it represents an idea.—Ed.]

HONEY FROM RASPBERRIES.

I wish to attempt to correct two mistakes in your list of seeds of honey-plants, which I cut out and inclose. I was brought up on a fruit-farm, and have kept bees since I was 12 years old. It is the red raspberries that the bees work on principally. They work some on black raspberries, and a very little on blackberries; but the bulk of the raspberry honey comes from the wild red raspberry. The cultivated is as good, or better, but there is not enough of it.

Sang Run, Md. C. A. MONTAGUE.

CORRECTION.

Friend Root:—In GLEANINGS for March 15, you apparently committed me to the proposition that bee-paralysis is hereditary, by your

headline to my paper on that subject. It should have been headed "Bee-paralysis Contagious." I do not believe that the disease is hereditary in the strict sense of the term, but that an infected queen will communicate the disease in the ordinary way by contact. I do not wish to reopen the discussion of this matter, but simply to make a correction.

T. S. FORD.

Columbia, Miss., April 9.

THE GOSPEL OF ART.

Work thou for pleasure; paint or sing or carve
The things thou lovest, though the body starve.
Who works for glory, misses oft the goal;
Who works for money, coins his very soul.
Work for work's sake, then, and it may be
That these things shall be added unto thee.

KENYON COX.



H. Y., Wash.—Bees can not, with any satisfactory results, be kept in a room adjoining the kitchen over winter. You had better leave them outdoors. In your climate they will probably winter all right. It might be advisable to put over them winter protecting-cases.

W. S. Y., Ia.—We leave chaff cushions on the hives along toward the first of June in our locality. It is better to leave them on a little too long than not long enough; in fact, it does no harm to leave them on all summer, only that they take the place of section-crates or any supers designed to take surplus.

W. B. R., Va.—The braula, or bee-louse, we sometimes find on the backs of imported queens direct from Italy; but we never knew them to make any serious trouble. The bees themselves will soon remove them when the queen is introduced into a strong colony. We do not know where you will find any further particulars than those given by Prof. Cook in his book.

H. M. S., O.—We would say we recommend the use of full sheets of foundation in the brood-frames; medium brood if wired, and heavy brood if unwired. Yes, we recommend wiring, running the wires parallel with the top-bar. Yes, use thick top-bars.—Carniolan queens are preferred by some; would refer you to John Andrews, Patten's Mills, N. Y., or Mrs. Jennie Atchley, Beville, Tex.

M. J. A., R. I.—Hives, as a general rule, should face the east. If they are placed toward the south it gives them too much sun in the middle of the day. If they face the west they are apt to get too much wind; if toward the north, also too much wind and too much cold. Taking all things into consideration, having

hives point toward the east is preferred by the majority of bee-keepers.

W. F. C., Ore.—When the bees build the combs crosswise we don't know of any way but to cut the combs out, straighten them out, and fit them back into the frames by the directions that are usually given for transferring. If they are too crooked for that, use the Heddon short way, given on page 32 of our catalog. We always advise beginners, and everybody else, in fact, to put at least a small starter in each brood-frame; otherwise they may have a condition of things much like yours.

W. H. W., Tex.—The half-inch space in the Dovetailed hive, back of the division-board, has a purpose. If every thing fit down in the hive snug and tight you would have difficulty in removing the Hoffman frames. We therefore have provided what we call the "lateral play." Remove the brood-frames; shove the division-board into the half-inch space. That breaks propolis connections. Remove the division-board, and then you have room to shove over the brood-frames and handle the same easily.

J. M., Kan.—A good deal will depend upon locality as to whether you can use two-story eight-frame hives with the section-crate on top. The colony should be a tremendously strong one, with brood and honey in both stories before any surplus will be put into the sections. —Bees will be likely to fill the second story with honey or brood before they occupy the section-crate.—The yield of section honey from the two eight-frame bodies all depends upon your locality, season, and size of colony.

J. R. W., Minn.—The circumstance you relate regarding drones from black queens is not an unusual one. Indeed, the progeny from hybrids—that is, a black queen fertilized by an Italian drone—will vary all the way from black to bright-yellow bees or drones. We very often see some very nicely marked Italian drones from queens that are perfectly black; therefore it is not color always that decides purity. If you were to take some of those nicely marked drones, and mate them with pure Italian queens, if it were possible, you would find the resulting progeny only $\frac{3}{4}$ Italian.

G. F. H., Cal.—The best inside lining for a solar wax-extractor of small size is Russia iron. Zinc and galvanized iron would darken the wax, and, besides, would reflect back too much of the light. Of course, if you can get an asphaltum that will not be affected by the heat or the wax it will make no difference what metal you use. The asphaltum used by photostock dealers for painting developing-trays would be about the thing. For large-sized extractors there is nothing better than matched boards of butternut wood, or something that will not shrink much. These, of course, should be painted black.



EXTRA pages and extra editions as usual. It is a good time to advertise and to send in new names. Yes, indeed, the new names are coming in fast now, so our subscription clerks reports.

BRIGHT sunshine, the merry hum of the bees, good bicycle roads, piles of orders, lots of work, and a good spring all around, are making us here at the Home of the Honey-bees happy. Our buildings were never filled with so many employees as now.

W. O. VICTOR, of Wharton, Texas, one of the prominent and leading bee-keepers of that State, sent us a couple of twigs from the rattan vine. It yields considerable honey in that State. He says it usually yields first-class honey anywhere from ten to twenty days.

IN our occasional department, headed "Question-Box," I have concluded not to state the question, because it is usually implied in the answer. I do this in order to save space. The answers that are published are a few selected from our daily correspondence, that I think are of general interest to A B C scholars.

It is a pleasure to announce that our friend and co-worker, Mr. R. F. Holtermann, of the *Canadian Bee Journal*, has received from the Ontario government the appointment of Lecturer on Apiculture at the Ontario Agricultural College. He is also in charge of the experiment apiary connected with the college. He is a good man for the place, and we shall look for some good work.

WE have received but one call for Given foundation made on rolls. Either it is or is not a good thing; and I am anxious to see it tried by different bee-keepers, not so much for the paltry profit there may be in fussing with a small quantity, but to determine whether it has real merit in the hands of others. We are ready to put in one, two, or half a dozen sheets with your regular foundation, when so requested.

From the last *American Bee Journal* it appears that the usual \$500 appropriation for the benefit of the Illinois State Bee-keepers' Association will not be granted this year. "The dairymen fared the same as the bee-keepers, and the horticulturists are not sure of getting any thing much better," writes Secretary Stone. The cause is attributed to the condition of the State treasury.

WE have now obtained some lysol, that new drug for curing foul brood, mentioned by C. J.

H. Gravenhorst as giving very satisfactory results in Germany. See his article on page 308, last issue. We will, till the supply is exhausted, send out a small vial of the liquid, a sufficient quantity for curing several colonies (10 cts.), to those who may have foul brood in their apiaries, and who care to make a trial test and report. It will be folly for American bee-keepers to shut their eyes against all drug remedies, and claim that there is no cure but extermination and the foundation plan.

WHATEVER legal or moral claims Mr. Heddon may really have over the Danzenbaker hive, it is but just to Mr. Danzenbaker to say that, so far as I know him, he would not appropriate any thing that properly belongs to another, not even an idea. He thoroughly believes, and I think he is honest in that belief, that his hive is not an infringement, and that Mr. Heddon does not have either moral or legal claim over any feature of the Danzenbaker hive.

HOW FATHER LANGSTROTH IS APPRECIATED BY A BEE-KEEPER IN COSTA RICA.

A PROMINENT bee-keeper, who does not wish to have his name printed, but living in Costa Rica, the most southerly of the small republics constituting Central America, seeing the article on page 170, March 1st GLEANINGS, soliciting funds for Mr. Langstroth, very generously sent a contribution of \$10.00, asking us to forward the same to Mr. L., whom he considered a real benefactor to him also. The amount was forwarded, and has been acknowledged with thanks by Mr. Langstroth's daughter.

I am sure our American bee-keepers appreciate this, not because of the largeness of the gift, but because of the spirit which prompted it. I can only regret that many of our American bee-keepers, using the Langstroth system, have forgotten to send in their annuity fund even when they agreed voluntarily to send it each year as long as Mr. Langstroth lived. I am informed that our venerable and much-respected friend is in very feeble health, and he does not seem to improve with the charming spring weather. Any funds that may be sent in will be received by ourselves, or by Geo. W. York, 56 Fifth Ave., Chicago.

DEATH OF CHRISTOPHER GRIMM.

As we go to press, a notice reaches us that Christopher Grimm is no more. Most of our readers knew him as the brother of Adam Grimm, and one who has for many years made it almost a religious duty to be present at the meetings of the North American Bee-keepers' Association. In fact, we well remember his genial smile and hearty handshake at our last meeting at St. Joseph. Christopher Grimm was known all over the United States as the successful and intelligent bee-keeper, his number of colonies reaching at one time 1000 or more.

I remember him as one of the brightest types of a genial, good-natured representative of Germany—a man of the most strict integrity and honesty. He was born at Halenbrunn, Germany, March 18, 1828, and died April 20, 1895. His home for the last thirty years has been at Jefferson, Wis. A. I. R.

STATISTICAL REPORT ON WINTERING.

IN response to our inquiry in our last issue, for reports on wintering, we have received about 100 letters. I was surprised at the good showing. Scarcely one had lost over 33 per cent, and there was a very large number who had lost absolutely none whatever. As was to be expected, inexperienced and slipshod bee-keepers did not winter as well as those who read bee-journals. But before these reports came in, quite a number of our agents who are selling our goods wrote that they would not be needing the usual amount of bee-supplies, as bee-keepers had lost pretty heavily all around them. I have wondered whether they, the agents, were not guessing that the losses would be much greater than they really were. The fact of the matter is, that, although we have had very severe winter, the spring and fall were unusually favorable; and experience has shown, time and again, that it is much harder to "spring" bees than to winter them. After a severe winter and a moderate spring, bees will come out from their winter quarters in very much better condition than when the reverse is true—a moderate winter with a prolonged cold spring.

HAS "HE DONE AND GONE AND DONE IT?"

"OBSERVER," in *Progressive Bee-keeper* for April 1, gives expression to the following:

We knew Ernest Root was incubating something to take us in with some time ago, and now he's "done and gone and done it." That twelve-frame hive is what's the matter now. Say, friend R., can't you give us a rest? We don't want any more new hives for a while yet. What we want is more honey, and more money for the honey. Will the twelve-frames give us that?

If I have advocated the twelve-frame hive in preference to the eight or ten, I did not know it. I believe the most I have ever said in its favor was that there was a possibility that large hives would give better results. I knew our sixteen-frame colonies at our basswood yard last summer had done better than the eight-frame; but this was only one straw. A short time ago, from the testimony that came in I concluded, and so expressed myself on these pages, that sixteen was too large, and that, if we *must* have large hives, the twelve-frame was the extreme limit. The substance of this opinion is given in several different numbers, and I do not see how from this I have "gone and done it" or how I was "incubating something" to take in the unsuspecting. I have written the hive matter in our catalog; and

while admitting that ten and twelve frames may be preferred by a few, I urged strongly the use of the eight frame—see second paragraph, page 4. Dear me! Some one else has been saying that I am an advocate of a double brood-nest. I did not know it before. I am simply open to conviction, and have been *trying* to call forth the truth, no matter whether it favors supply-dealers or anybody else. If we *ever* adopt the twelve-frame as the standard it will be much against our will and our pocketbooks, as well as the pocketbooks of bee-keepers who might be foolish enough to follow every such fad. Take it all in all, Observer, if I am not very much in error we stand on about the same footing, and I therefore indorse your two last sentences heartily; but at the same time do we want to shut our eyes to the value that there may be in other systems and in other managements? It is a publisher's business to dish up the truth impartially. Am I not right?

WHAT I THINK ABOUT PATENTS.

WHAT do you think I have on my desk, in a prominent position? A patent-binder—not something that I patented myself, but a binder containing copies of patents of all important apicultural inventions. We have made arrangements whereby we now receive a copy of all patents on apicultural inventions as soon as they are issued from the Patent Office. Some of them, I feel sure, will never bring their owners any return; others give promise of being useful, and perhaps will be of some advantage to their owners in a pecuniary way. I hope so. Whatever may have been the opinions of my respected parent in the past, the more I look into the patent system in the United States the more I feel like admiring it. Although it has its defects, the system in our country, I believe the world acknowledges, is the most perfect in the world. And the fact that some of the greatest and most useful inventions have emanated from this land is evidence along this line.

Are we going to patent any of our recent devices? No—that is, we have no intention of doing so now. But I have advised one or two—yes, several—to secure their ideas by patent, even when I knew that such a patent might compel us in time to pay royalty. As examples of this I would refer to the Crane smoker and the Porter bee-escape, both now well-known and useful implements. I believe most thoroughly in the idea that inventive genius, and the product of the brain in this line, should be rewarded. On the other hand, I believe that our patent system should be so modified as to restrict some of the fearful abuses connected with some of these patent-monopolies. I am glad to see that the Supreme Court has recently made some much-needed and substantial limitations.



ON THE INDIAN RIVER.

The Indian River is generally mentioned as a synonym of something balmy and tropical. On the morning of the 7th of February, however, there was a keen northwest wind, and things were not so very tropical after all. Friend Gifford is employed by the government to light and trim the lights that are kept constantly burning for beacon-signals along the Indian River; and you know Uncle Sam's business must be attended to, visitors or no visitors. Friend Gifford had been planning to take me on this trip; but I was pretty nearly sick, and the state of the weather seemed to indicate that the trip would have to be given up. But I changed my mind before he reached the boat-landing and followed after him. Up in the garret of the Gifford home there was a heavy old overcoat that had done service away back in Vermont. After having had about ten years of repose in said garret it was brought down on that eventful morning. It was large enough so I could get it on over my own overcoat, and, thus rigged, I began to take almost my first lessons in running a sail-boat under a heavy wind. I enjoyed the trip, however, very much, in spite of the wind and cold. These beacon-lights are to direct the boating craft after dark; and as it is necessary to go several miles to replenish the lamps, they are allowed to burn night and day, the expense of the oil being less than the cost of travel needed to keep them lighted all the time. One not accustomed to boating might think a steamer could go anywhere. Not so, however. The highways of vessels are laid out almost like the roads overland; and wherever there are dangerous points, piles are driven at stated periods, projecting above the water enough so a board may be nailed on, indicating to the pilot of the boat the channel. Sometimes these guiding-posts are within a quarter of a mile of each other or even less; again, they are a mile or even two miles apart, the pilot understanding the signification so that he may avoid the shallows. Well, in the night time they use these lamps as a guide to the pilot, and they are near enough together so that one or more of them are always in sight. At each lighting-station our little sail-boat had to be securely lashed to the framework of timbers supporting the light. Then friend Gifford climbed aloft with his substantial copper lamps, carrying a great hood made of sail cloth, to cover himself and lamp while he did the trimming and filling, and cleaned the chimneys, etc. It seemed as if the wind would tear the boat loose sometimes; and, in fact, unless very stout ropes are used, boats often do break away. When the wind was the highest, it was necessary to lower the sail before tying up the boat; and then it had to be hoisted again when we started out amid the boisterous wind. Sometimes it seemed as if we surely would upset. But friend Gifford had a knack of handling the flapping sail as an expert would handle a vicious colt. Just once the rope got caught, and I thought we were going over sure into the cold briny water, amid the boisterous and almost deafening gusts of wind. But he was equal to the occasion; and once when the water actually came over into the boat a little, and I began to turn white from the scare, a single glance at his self-possessed smiling countenance reassured me. I shall long remember that experience on the water;

and I enjoyed it greatly, although I did get cold and stiff before we finished our day's work. He said it was almost the first unpleasant day for the work he had had for the business in all the years he had held the post.

The next day, although it was still cold, we started out to see the bee-keepers. We stopped briefly at the home of Mrs. J. D. H. Weir, Toledo; but the weather was so cold that both the bees and the interesting family of children were kept pretty well indoors. Children seemed to be so scarce in that part of Florida that it rejoiced my heart to get a glimpse of even a tolerable-sized family. If we don't have any children we surely can not have any schools; and if we do not have schools, what will become of us?

We made a brief call at Woodley, and then pushed on to friend King's, where I reluctantly decided I was too sick to go any further. I have mentioned briefly something of that pleasant visit prolonged to several days when I expected to stay only an hour or two. Friend King is a very quiet, still sort of man; but even if he does not talk much he does a tremendous lot of thinking; and, by the way, a big lot of work comes about in his quiet sort of way. Several times I heard him nailing up work before daylight; and when I was up so as to look out of the window, there he was out in the dooryard, working by the light of his lantern. He has now several hundred colonies of bees, and has secured some crops of honey almost equal to those a little further north around New Smyrna. His good wife busies herself with a fine flock of poultry numbering almost a hundred laying hens, while he looks after the bees and makes the hives.

FLORIDA ANTS, ETC.

In many parts of Florida they are pestered with a species of large ant. At Daytona I found some of the bee-keepers setting their hives on legs, and planting each leg in a dish of water. But even then leaves blew in on top of the water and made a bridge for the ants to get over. Besides, unless the water was watched it would evaporate from the dishes, and then the ants would get through again. Friend King studied over this matter, and finally went to the woods (all about him), where pine-trees are so plentiful and cheap, and cut down some tall trees. Two of these were placed side by side, and spiked together just far enough apart to hold a hive conveniently; then legs were put on to this long frame so as to raise it up to a convenient height for working. Then the legs of this huge bench were set in wooden troughs hewed out from these same pine logs. You see, when the wooden trough is filled with water it lasts a good while; and three of these troughs will hold a frame long enough to support, say, a dozen or may be twenty hives of bees, the long frame being supported at each end and once in the middle. After he had got his apiary of several hundred colonies fixed in this way he decided it would be cheaper to cut a ditch clear around his apiary, house, and garden, and then fill the ditch with water. The ditch is needed any way, where there are so many forest-trees, to prevent the roots from the forest coming in and using up his expensive fertilizers. After the ditch was finished, however, he found that the water was not actually needed. The soil is so sandy that, when the ants get to the bottom of the ditch, they find it impossible to climb up the steep sides, because the sand gives way, especially if the ground is dry, and lets them roll back into the ditch. After he got the ditch all finished he said the ants came from the woods in great bodies, and literally piled up beside it, and stayed there days, evidently mad because they could not get over to the hives and help themselves to the

honey and young larvæ as they had done in former days.

By the way, friend King is a pretty determined man when he sets out to succeed. He found the ants did most of their brooding in rotten logs in the woods, so he took his wife's flock of poultry, coaxed them out into the woods with corn or other grain, then chopped open the logs and taught them to devour the white larvæ of the ants. The chickens soon became very fond of such food, and in time he came out victor. The ants got along very well with the water-troughs and even the ditch; but when he retaliated by taking his hens out into the woods to eat the ants' larvæ—their children—instead of letting them eat the young bees from his hives, they concluded, evidently, that this was a little *too* much. It was the last straw that broke the back of the camel, you remember; so the ants packed up their tents and moved away to a healthier locality. And, by the way, there is a lesson or two right here. When we begin to wage a determined warfare on any insect-foe—so determined as to take up the *aggressive* instead of the defensive, and follow them to their *holes* as it were—they will pretty soon take the hint and abandon the ranch. Tracking and chasing them up to their breeding-places is, a great many times, cheaper than drugs—Terry's plan of managing potato-bugs, for instance.

BEE-PARALYSIS IN FLORIDA.

Friend King has had some experience with bee-paralysis, and he tried an experiment that was new to me. He took some of the brood from a suffering colony, and put it with a healthy colony to see whether the bees, when they hatched out, would have the paralysis. Has anybody else ever tried this? Is the disease one of the brood, or is it something that the bees get after they are able to fly? If I remember correctly, he said they had no paralysis in the new hive on a new location. This does not strengthen my position that I took so many years ago; namely, that the diseased bees were those reared from a certain queen, and that, when you remove the queen and put in a healthy one, the disease is cured.

On this Florida soil, where fertilizers must be used, at least on the greater part of it, I found there is much discussion and much uncertainty, as with us up north. Friend King paid \$22.00 for a ton of what he called Gainesville fertilizer, and he says he does not believe it did him a nickel's worth of good. Very likely it was something his soil did not need. His poultry manure, however, always gives a sure and profitable return; and he says he verily believes the manure from the poultry is worth half as much as it costs to feed them, even when fed on grain that has to be shipped down from the North. In other places I found similar statements. Poultry manure always tells on almost all kinds of garden stuff or fruit. One of Mr. King's neighbors saved half an acre of melons during the freeze by covering them with sand. He is an unmarried man, and went out to see his "best girl" on that eventful night. When he returned home to his ranch at half-past eleven at night he realized the danger his melons were in. You know melons are planted a good way apart, and therefore it does not cost so much to cover each hill with sand. He worked about three hours, and all were saved except a few where he did not put on quite enough sand. Friend King saved 1500 tomato-plants through the first freeze, by a similar proceeding; but he lost them all during the second. Some of them had tomatoes on at the time, as big as hickorynuts. When I was able to get around, my friends declared I must stay at least one more day to visit

PELICAN ISLAND.

It was not *altogether* curiosity that made me want to see this wonderful island. As the water all about the island was quite shallow, we were obliged to use a row-boat; and even this ran aground so many times that we were some time in finding a landing, and succeeded only by wading (Mr. King *currying* his better half) ashore. Before we reached the island a swarm of these strange birds, with their queer-looking pouch or gripsack hanging to the under side of the bill met our view. They are as large as a good-sized goose, or perhaps a little larger; and we found them not only filling the air but on the water all around the island; and on the island itself were hundreds and thousands, apparently sitting still with their funny-looking heads sticking straight up, and that long queer bill, with its appendage, hanging almost straight down. They did not seem to be very much afraid of us, for we could come up near enough to hit them with clubs were we viciously disposed. Hundreds of nests met our view containing eggs, young just hatched, and from that up to birds of all sizes until some of them were ready to fly. The freeze had driven the fish away into deep water, and the poor things were having a sort of famine on account of the unusual cold. In fact, the young pelicans were suffering to such an extent that, when we came along, they would open their mouths and beg most piteously for their accustomed food. They even hopped out of their nests, and ran after us with mouth stretched wide. The scene was so touching and painful that I turned away. The friends assured me that nothing could be done but to wait for warmer weather and the reappearance of fish. This island has probably been the breeding-place of these birds for ages. In fact, the manure has accumulated to the depth of several feet, covering the island, and almost extinguishing vegetation of every sort. At one time it was suggested that this sea-bird manure might be of value like guano; but the trouble is here, the fertilizer is not only drenched by the incessant rains of Florida, but at stated periods the salt water is blown by winds almost over the entire island. One wonders why these birds should come from miles in every direction to congregate on this one particular bit of land. The island contains perhaps some four or five acres; and it is almost completely monopolized by the birds. If these birds have been in the habit of roosting and nesting here since they came on the face of the earth, why should not this deposit be still larger? I believe friend King told me that the oldest inhabitants have a sort of tradition that there was a time when the island was not thus occupied. If this be true, what should cause the birds to change from one place to another? I afterward discussed the matter with the State Chemist, of Lake City. He also agreed that the accumulation of fertilizer was of little or no value. The guano of commerce all comes from islands where little or no rain falls, or from caves where birds and bats congregate, protected from the rain and its consequent leaching.

The second thing that interested me in regard to this island was the fact that here, right under my eyes, was a poultry establishment carried on entirely without the guiding hand of man. The birds themselves, and the instinct implanted in them by the great God above, managed the whole thing and did it successfully. Now, if pelicans can breed and multiply enormously without human agency, why can not a properly arranged island or inclosure be made to do the same with common fowls? If we have not breeds adapted to the circumstance demanded, then get somebody to

furnish us the breed. I once had one little brown leghorn hen that I verily believe would have peopled a farm with poultry all alone by herself, and in a very short time too, if plenty of food could have been provided for her and the chicks.

"Are pelicans' eggs edible?" you may ask. I think my friends told me they were eaten by some people; but as the diet of the birds is exclusively salt-water fish, the eggs are rather rank in flavor. Now, if any reader of GLEANINGS can tell me of a successful effort at raising poultry where they manage to raise chickens all by themselves, I should like to hear about it. I suppose you know the enormous wealth of the great cattle-kings of California, Arizona, and Florida, is secured in something this way. The cattle run wild, and breed after nature's fashion, the hand of man never coming in at all except to put the proper brand on the calves as fast as they arrive at a proper age. The flock grows and multiplies as the years pass, without any management from the owner—the only condition being, indeed, a sufficiency of pasture.

On our way home we stopped at a pretty little point called Orchid; and it was quite an agreeable surprise to find, away out in the wilderness, a pretty little home full of books, magazines, and periodicals, presided over by a newly married couple—Mr. and Mrs. Forester. In their beautiful garden, watered by an ever-flowing artesian well, we found orange-trees containing leaves, blossoms, and fruit in limited quantity, unharmed by either the first or second freeze. This little bit of Eden is protected by both water and the great tall spreading palm-trees. It is on a strip of land between Indian River and the ocean-beach. We also saw beans under the protection of the palm-trees, that had passed the ordeal of both frosts. This would not have been sufficient, however, were it not for the water on each side of it. The place has been named "Orchid" because tropical plants like the orchid here find a safe place to grow and thrive ordinarily. The plan of irrigation here is to have the artesian-well pipe come up in the center of the garden, say four or five feet above the general level; then, to avoid the expense of more iron pipe for conductors, the sand is banked up nearly to the top of the pipe; and in the top of this ridge of sand a little ditch is made with a gradual incline. This takes the water off in different directions across the garden; and with sand ridges to hold the water it is conducted between the furrows where they want it. Of course, much water is wasted by leaching through the sandy loam; but the artesian well gives such an unlimited supply from a four-inch pipe that it can waste all it wants to. Of course, when the garden shall have increased so that it becomes an object to utilize all the water, iron pipes will probably take the place of the ditches on top of the sand ridges. After having had such a visit as I did with friend King and his wife, and with Mr. and Mrs. Forester, it makes one feel like thanking God that there are such real nice people in this world of ours.

The wind was still boisterous when we undertook to climb from the landing down into the little row-boat. I was so much of an invalid after my recent sickness that I did not attempt to help very much. In fact, I was so unused to such treacherous things as boats that I needed help most of the time myself. Mr. King had charge of the management of the boat, and his wife was obliged to climb down and secure a foothold while the boat was swaying to and fro. She came near falling at one time; but instead of grasping for the secure timbers of the pier, she held tenaciously to her

little purse, or satchel, forgetting she could toss it into the boat and use both hands to steady herself. Friend Forester here broke in with:

"Look here, Mrs. King, I want you to tell us what is inside of that precious porte-monnaie that makes you cling to it so frantically, as if it were of more moment than life and death."

Without waiting for her to answer, her husband replied:

"Why, she has not *any thing* in the pocket-book except a five-cent piece. That is just the way with women-folks."

I here came to Mrs. King's rescue by remarking that I had known quite a few *men* during my time who would hang to a nickel, even though they knew it would carry them down to perdition and death, but that I was sure it was the first time in all my experience where a *woman* risked her life by holding fast to the root of all evil, and that I for one strongly resented the imputation that womankind are given to such penuriousness. Mrs. King did not vouchsafe to open that precious pocket-book and tell us what it *did* contain; but we laughed long and heartily, especially as she did *not* go over into the briny deep. Then somebody sang out that a school of porpoises was rounding the point.



Is it lawful for a man to put away his wife?—
MARK 10:2.

There are unfortunate and unhappy marriages in this world of ours, as we all know; and a good many times it would seem as if the two had better separate—that is, it would seem so to *human* judgment and wisdom, especially when we attempt to use that judgment and wisdom without asking for grace from on high to guide us. I am not sure but I have, under certain very extreme circumstances, myself advised the separation of man and wife. If I did, however, I am pretty sure that my conscience troubled me about it afterward. There may be a terribly bad state of affairs where they undertake to live together; but the older I grow, the more I am convinced that it does not mend matters to seek a divorce through the courts of law. In the first place, the *precedent* is a bad one. The example is bad for the community. It is *terribly* bad for the children. It seems to wrench things asunder—things sacred and holy; and wreck and ruin often follow in a way no one could have expected. Satan's stamp and Satan's seal seem to have been left on divorces of almost every sort. Sometimes I am consulted in such matters when told that parties can not live together. My reply has been invariably—that is, before I knew the circumstances—that they would find it more trouble *still* to undertake to live separate. Now, the story I have commenced to tell you, perhaps, does not bear me out in this. If we knew all the circumstances connected with it, perhaps it would, after all.

I presume most of you are familiar with our Savior's command in regard to this whole matter. In fact, it has been read and considered again and again. This much seems to be clear: Christ Jesus gave very little encouragement, and I believe mentioned only one case in which divorce might be considered excusable; and if I am right he at least advised that man and wife who separated on that account should not marry again.

When these two parties, John and Mary, were well along in life, a circumstance occurred that perhaps helped to hasten the separation. In the town where they lived, the editor of the village paper was getting to be very intemperate. He was not only squandering all of his own means, but he had commenced, also, to waste the little property that belonged to his wife before they were married. The wife, in despair, appealed to our friend John. His connection with the bank gave him an opportunity of knowing more or less in regard to legal matters, and he was, perhaps, a very good man, under the circumstances, to advise the poor woman. Out of the best of motives he also undertook to see if something could not be done for the intemperate editor. The result was a sort of joint stock company of three—John being one, the editor one, and the editor's wife the third. In this way an intemperate man was prevented from using up his wife's property; and finally he was so far reformed that the paper began to grow, and the printing-office did a thriving business, proving a profitable investment for all three. Under the circumstances, the wife's gratitude was unbounded to John for saving not only her property, but her husband from a drunkard's grave. Before John undertook this he consulted with his wife, and had her discuss the matter fully with the editor's wife. Mary declared she was quite willing, under the circumstances, that John should enter into this praiseworthy undertaking.

Let me digress a little right here to say that such arrangements are more or less risky and dangerous. Even though John had been at the time a devout Christian, which he was not, and even though this editor's wife had been one of the very noblest and best of women, which I have reason to believe she was, I think we should be exceedingly careful indeed how we undertake any thing that invades domestic relations to the extent of the case mentioned above.

The poor woman, when she saw her property was saved, and her husband too, which was of a thousand times more moment, felt, as I have just said, unbounded gratitude to John. My friends, Satan is not slow to take advantage of such a state of affairs; and it seems a little strange sometimes for us to be obliged to confess that there is but a single step (often a very short step) from the noblest and best instincts of humanity down to the lowest and most deplorable. The man who had been saved from his intemperate habits did not stay saved. He was not saved through Christ Jesus. I do not mean to discourage friendly efforts like the one above; but the man who breaks away from any terrible sin needs more than human agency.

One night John remarked he would have to go to the bank and finish some urgent business. His wife objected, but he said it had to be done. When he arrived home rather late, his wife had already retired. She asked him if he had been at the bank at work. He was a little surprised at the question, but answered, and, I believe, honestly, that he had. She charged him with falsehood, and finally admitted she followed him when he left home, and saw that he did not go to the bank. Then he remembered that, before going to his work, he stopped in for a little chat with a particular friend. She followed him, and saw them through the window. She probably was jealous of the editor's wife at the time; and even though she did not discover that he was anywhere near the woman, she *did* discover, or, at least, claimed she did, that he was untruthful; and if he was untruthful in one thing, why shouldn't he be in another? This is a poor sort of reasoning, as all will admit; but when a woman once loses

faith in her husband she is ready for all sorts of foolish suggestions from the green-eyed monster. John declared he *had* been at his work, and she declared again he had *not*. Was not this a foolish thing to dispute about? I wonder if it occurs to you, dear friends, just now, that *you* at times have been perhaps just as inconsistent and unreasonable as were these two. They were both wrong and wicked. John was tired, and wanted to go to sleep. They had got a going, however; and the poor wife, like other daughters of Eve, could not rest without the last word—and, in fact, I fear there were several "last words." John told her again and again that she must stop and let him have his sleep or he could not get through with necessary duties that were to be performed early in the morning; and finally when she would not stop he left the room and sought a bed in another apartment. I do not know whether he got the needed rest in the other apartment or not. I can thank God, and do thank God almost every day, that I can go to sleep quickly and readily under almost all sorts of circumstances; but I am quite sure I should never have found any rest or recuperation in that other room. The only possible rest for me would have been after I had kneeled down by the bedside, my wife kneeling with me, and asked God to forgive two of his children for being bad and wicked, and to help them to do better. I think I may safely say that, before the little brief prayer would be finished, my wife's hand would be in mine, and *then* we two could go to sleep. You may say, perhaps, I need to thank God for giving me such a wife. I quite agree with you, for I have and do often; but, my dear brother, something seems to tell me that there are very few women in this world of ours who would not go at least half way toward a reconciliation and a settlement of disputes of this sort.

But these two friends of whom I am speaking were not Christians. Certainly neither one of them was in a Christian frame of mind that night. John continued to occupy another room from that time on. Friends began to notice the trouble; and Henry, whom I mentioned in the outset of the story (who was also, by this time married), came over and plead with John. He asked John to forget and forgive, and to try once more. John replied that he had forgotten and forgiven so many times that the thought of it sickened him. He did not want to try any more; but for Henry's sake he finally yielded. It turned out as the intemperate editor turned out. Without God's grace and God's blessing the same conditions produce the same results again and again. "Ye must be born again," the Savior said, and there does not seem to be any other way but the new birth through Christ Jesus.

Dreary months passed for these two. Mary finally said she was going home to her father's. John agreed, and suggested that she had better stay there for all time to come. Preliminaries were arranged as to who should have the children, etc., and then she bade adieu to her husband and the children she was to leave with him.

In a very few days, however, it was whispered that the editor's wife was the cause of the separation. She heard of it, and implored John to bring his wife back again, and offered to go with him. By this time the editor was back to his old habits worse than ever, and the poor wife was sinking into an untimely grave from abuse and neglect and privation. The shock and excitement of the scandal made it almost necessary that Mary should go back, to save a life. John sent for his wife to come back. The editor, however, had got some ink-

ling of matters through his befogged intellect, and about this time woke up enough to get down on the street just drunk enough to boast before everybody that John had sent for his wife to come back because *he* had pointed a loaded pistol at his head and told him to do so. John became stubborn and ugly, and declared he would never live with the woman again, even if she came back, and telegraphed her not to come. He told me he had been so harrassed and worn out from want of peace and rest that he was about ready to commit suicide rather than to undertake to live under the same roof with that woman again. You see, Satan had got matters well in hand by this time. When he gets a man, or woman either, where they say they would rather commit suicide than to do some other thing, he is pretty nearly master. If you want to know how many suicides come about in something this way, read the daily papers. Sometimes it is divorce, desertion, and suicide *too*. Years after these events John became a Christian. He and I went over the ground together. I suggested to him what a Christian would have done under the circumstances, and we pretty nearly agreed on the matter.

Now, friends, if in this little story I have seemed to blame Mary, or if I have unconsciously told how provoking and ugly a *woman* can be if she has a mind to, I have made a mistake. If, however, I have succeeded in telling you how provoking and ugly *both* men and women can be—even husbands and wives, and fathers and mothers, when Satan is allowed to get a foothold in the family circle, then my story has performed its mission. The inmates of any home are to be *pitted* when Satan gets the upper hand. They are to be pitied exactly as if the smallpox had broken out in that house and could not be stopped. If there were no remedy, and no help for Satan's work, then indeed would this world be a sad place to live in. But, dear friends, there is a remedy and a *cure* for all troubles of this kind—even Christ Jesus who came from heaven to earth to cast out Satan. If the dear Savior is not invited into your home—if he is not one of you—be assured Satan will come, and he comes *without* invitation. Yes, even *now* he is going about as a roaring lion, and we should be helpless indeed against his wiles were it not for the Lamb of God that taketh away the sin of the world.



GARDENING UP TO MAY 1.

When I got home from Florida I think I told you our crimson clover was all right. So it was; but the severe freezing and thawing, day after day, through the latter part of March and fore part of April, has, I fear, used it up. When I saw it so green and well rooted in March, I thought it was surely safe; but now there is scarcely a root of it left, and it is much the same with our White Multiplier and American Pearl onions. This time, however, instead of putting them on the creek-bottom, where I have for years past, we put them up on the swamp in the black muck; but the muck seems to be so loose that the roots could not get hold enough. Perhaps half of our White Multiplier onions are all right, and these that stood the freezing and thawing the best are on a well-underdrained clay soil. They look pretty sick even now as I write; but as the freezing seems to be over, I think they will fetch up. I

am going to try crimson clover again, and put it in earlier. But I tell you it is a relief to take a look at the lathyrus silvestris. Why, the way that pea-looking plant sends its roots down into the ground is just wonderful. Not a single weak plant has been disturbed in the least; and yet they stood in a very exposed situation without any sort of protection. They were on our rich plant-beds, however, where the ground was spaded down a foot or more. A single tap root goes straight down. Now, if this forage is relished by stock, what a wonderful thing it will be to have such immense quantities of feed year after year, without any care or attention except to keep cutting your fodder when it is big enough! Our sacaline-plants are taking hold and growing tremendously. I do not think I ever saw a plant have more vigor—no, not even a *dock*; but it does not look to me as if it were going to be as valuable for feed as the lathyrus. The latter, you know, is one of the plants that take nitrogen from the air. By the way, we have a relative of the man who introduced the lathyrus, here in our own country—Mr. Carl Wagner, of Economy, Pa. He advertises the *genuine* lathyrus, and says there are imitations. We have purchased 500 to test beside our own. His directions for cultivating are printed in English and German. Here is the English translation that came with our plants:

TO CULTIVATE THE GROWTH OF WOOD CHICKLING VETCH, LATHYRUS SILVESTRIIS WAGNERI.

This seed is to be sown during the month of April in a well-cultivated growing garden, in rows, and placed about 12 inches apart. The bottom ground must be well dug up and turned over, and the upper crust properly manured. Should this not be the case, an artificial fertilizer may be used, so that the outgrown lathyrus seed is penetrated by the mineral gases, etc., and the many roots forced through the sand, stone, or other rough bottom containing mineral strength. In such cases the seed is not always successful in taking root, and is mostly drawn by the aid of old or mother roots during the first season. A growing garden, continuously well dug up to a sufficient depth, may serve as a propagation-bed for at least ten years, without remission.

From the middle of October to the end of April of the next year, provided the ground was not frozen, these one-year plants may be transplanted in all directions, about 12 to 14 inches apart. The bottom of the field must be dug up and well turned over, as the nutriment will then last 20 to 25 years; whereas by ordinary plowing or turning over it may not do so well. The roots of the transplanted seeds are cut smooth, and supported to a height of 8 or 10 inches, so that, when the next row is dug, the ground covers the one just passed. These seedlings thrive best when the head is imbedded about two inches in the ground. If not set in deep enough, and the heads with the neck of the roots are exposed, the seedlings perish. Wet grounds or soft soil containing stagnant water will kill, where dry, deep, sandy stone soil is successful. It is not meant to reject good soil, but it should be dry. See item on chickling vetch in the New York *Staatszeitung*, Feb. 11, 1893; June 10, July 15, Sept. 2, and Sept. 30.

CARL WAGNER.

Economy, Pa.

STRAWBERRIES UNDER GLASS.

My strawberries under glass did not succeed during the past winter as they did the winter before. When the terrible freezing weather came on while I was in Florida, it was necessary to let on so much steam to keep our dwelling warm, the strawberries were pretty well cooked; but if they attempted to ventilate, the plants were cooked at the roots and scorched on their tops. If a little greenhouse were built right over the underground passage for exhaust steam, instead of the simple hot-bed with sash, it would equalize the heat, and make it possible to raise plants.

COLD-FRAME ONION-PLANTS.

This last winter we made a larger experiment

in wintering onions under glass than ever before. Only two varieties were tested—the Prize-taker and American Pearl. The seed was sown quite thickly in the beds in September. By the time freezing weather came on we had onion-plants with bulbs about the size of the end of your finger. The sashes were put on and moved very little through the winter. To prevent the beds from becoming too hot when the sun shone out, every third or fourth sash was made of glass slats such as I have described. Besides, the dogs walked over the glass, here and there smashing out a light. I told the boys to let these occasional lights be for ventilation, even if it did kill the plants right under the opening. These onions are so hardy that a very little protection suffices; and when the severe freezing occurred in March and April, with warm sunshine in the middle of the day, the glass saved these from injury. We usually tilted the sashes, however, in the middle of the day. These onions are now, April 24, some of them, nearly as large as hens' eggs. They will make nice-looking bulbs away in advance of onions raised in any other way; and the ground was made so rich with manure that we can let them grow so close together that they almost push each other out of the ground. This sort of treatment will certainly pay, for you can almost set your own price on beautiful nice onions away ahead of anybody else. Very likely the White Multipliers would work nicely under this treatment. I presume that, in a few days, we shall have trouble by many of the large onions sending up seed-stalks, because they made part of their growth last season. To obviate this we can pull out the seed-stalk, or pull out such onions, and sell them in bunches. Of course, these cold-frame onions would be a splendid thing for onion-plants; and I think it would pay to give twice as much for them as for onion-plants raised in the greenhouse, from seed sown in February or March. To produce plants, they should be sown a great deal thicker than we have them. Another season, I think I shall use a great part of our sashes in producing cold-frame onion-plants for early market. In fact, ever since the trade has started in onion-plants we have had orders for them before they were ready; but the cold-frame would *always* be ready. In our locality, and with our average freezing weather which we have in March and April, I should say the cheapest and best way to raise spinach is in beds just such as I have described for onion-plants. No heat at all is needed for either onions or spinach, if you plant them so that they get a good start in the fall, before the sashes are put on. The spinach is ever so much nicer than any we ever get wintered in the open ground. All your sashes can be easily utilized at a season of the year when they are hardly needed for any thing else. Late frosts are making trouble with our large twice-transplanted tomato-plants. We have put them in a bed having the sides so high that the sash is quite a distance above the soil; but every night, when it looks like frost, the glass lies on top of the tomatoes, crushing down their leaves and blossoms. This does not do any particular harm unless it is cold enough to freeze through the glass. But they are growing so now that they probably would not stand it very much longer.

We are still getting 15 cts. per lb. for lettuce, or 20 cts. where it is sold in five-cent packages. Our first pie-plant brings 5 cts. a bunch, three bunches weighing a pound. Our first asparagus brings 5 cts. a bunch, eight bunches to the pound. Of course, these bunches are very small; but we aim to put all our vegetables up in five-cent bunches. As the season advances

we make the bunches heavier. For instance, the first onions raised in the greenhouse are put up in bunches of 4 oz. each. As the season advances we give three bunches to the pound, then two, and finally a bunch weighing a whole pound, for a nickel. But in order to induce people to purchase more we sell 3 five-cent bunches of any thing for 10 cts. Of course, it is some trouble to do the bunching up; but our boys use cheap rubber bands, and it greatly facilitates the work of the man on the wagon. He simply says to his customers, "Five cents for a bunch of any thing, or three bunches for a dime." In this way there is no weighing up, no discussion, no bantering. Of course, each customer is to take each bunch as it comes. He is not to pull them over nor sort out the best. But in putting them up, the boys endeavor to have the bunches average of equal value.

I wonder how many of the friends are enjoying working with plant-beds and sashes, as described in the latter part of the tomato-book. Oh! by the way, I got hold of a new item in this matter during my Florida trip. You will notice in my travels how much I said of the protection furnished to garden-stuff by planting under trees. Now, with the plant-beds I have described you do not need to fear the roots of trees robbing your plants—that is, if you have some trees in your garden that produce a valuable crop. Let the trees help themselves. Bring in your manure, and bring in water; and be sure there is enough to go round. Apple-trees trained high, so the limbs would not hit your head, would be just the thing, and in the fall of the year the foliage will protect your tomatoes from frost so that you may have several gatherings after the frost has destroyed those, where there is protection from the trees overhead. The shade of the trees is really a good thing for many kinds of plants and crops during the extreme heat of the summer. And then just think how pleasant for the wife and children to "make garden" in the shade under large leafy trees. But in this business of *high-pressure* gardening the shade-trees ought to be something that bears crops of great value. The mango-tree, of Florida, where the fruit from a single tree brought \$150, that would be just the thing. Very likely grapevines could be trained high enough to give the right amount of shade, and not interfere with the work. You see, there would be no leaves at all until hot weather comes. In fact, I have seen magnificent crops of grapes grown on vines trained overhead, so one could just reach the clusters. Of course, there are crops that need all of the sun; but there are a good many that do better without *all* of it. We have raised beautiful cabbage, celery, and tomato plants, where they were shaded a great part of the day by evergreens.

Now, when some of you have got a nice plant-garden under some tall branching shade-trees, please invite me to come and see you. Just now I am getting greatly in love with *strawberries* in our rich plant-beds. With plenty of water and plenty of manure I can make them do just what I want, even through the hottest part of summer; and if you want to raise nice strawberry-plants for sale, the plant-beds are the place to do it. If you have exhaust steam that you can run under some of your plant-beds, all the better.

The strawberry-plants I got of you last fall were so fine that several have asked me about you, as they wish to deal with so honest a shipper.

S. S. FETHEROLF, P. M.

Palestine, Ohio, April 15.

THE BEAN CROP, ETC., IN FLORIDA, IN SPITE
OF THE BLIZZARDS.

Mr. Root:—You remember the 7th of February every thing was killed. We thought it of little use to try again after being frozen out twice in one season; but one of my neighbors had 32 lbs. of seed beans on hand, which he concluded to eat to save them. I induced him to sell them to me, and I planted them Feb. 12. I have shipped 78 crates to New York, picked from this 32 lbs. planting, and shall probably get 40 more. We have a good crop of Irish potatoes, which we sell here on the river for \$2.00 a bushel. Our table is well supplied, and has been for two weeks, with cabbage, summer squash, Irish potatoes, string beans; and radishes and lettuce for the last month; so you see we do not have to wait long here, even if we do lose all by a freeze, which does not happen more than once in about ten years, and this the hardest in fifty years. H. T. GIFFORD.

Vero, Fla., April 22.

ELECTROPOISE, OXYDONOR, ETC.

A PLEA ON THE OTHER SIDE OF THE CASE.

Bro. Root:—I see you have inserted in GLEANINGS several notes condemnatory of the Oxydonor (including it with the Electropoise). Now, may I not ask if you are not talking too fast, and perhaps condemning a thing which you may not understand because you do not see *how* it can be useful because it does not coincide with what has been used in the past. Is it so perfectly impossible that there shall be any new discoveries made in science? and is it not possible that this shall be one? Other discoveries have been ridiculed in the past, and no doubt will be in the future.

I send herewith a circular of the Oxydonor Victory. Please look it over, and decide in your mind whether you can believe that all these certificates, over 250, are either frauds, or have they been relieved or cured all by the powers of their imagination? If you had advised your sick friends to go direct to the Lord Jesus Christ, the great physician, for healing, rather than depend on Electropoise or Oxydonor, I should not have said one word more than "Amen." A. H. VAN DOREN.

Hammonton, N. J., April 19.

My good friend, I should be very glad indeed if it were possible that these people have made a new discovery. Yes, new discoveries are being made in science every day; but it is not possible that some new discovery may decide that 2 and 2 make 5, instead of the old orthodox way, 2 and 2 make 4. Another thing, you confound legitimate discovery with fraud and deceit. In regard to the 250 testimonials, it not only makes it sadder but more deplorable. Suppose these people all declared that nailing a horseshoe over a door performed these wonderful cures—would you believe it? Well, Electropoise and Oxydonor are even worse than this, for they claim to be scientific, and that they have made a discovery; whereas, it is all humbug, cheat, and fraud. These men are hypocrites. Read again what U. S. Chemist, Prof. Wiley, said on page 321 of our last issue.

And now read below the testimony of Pres. Ballantine, of Oberlin College:

Oberlin College, President's Office, Apr. 10.

Mr. A. I. Root, Medina, Ohio:—I agree with you that it is inexcusable for religious papers, or respectable papers of any kind, to advertise such frauds as Electropoise. To take the money of such advertisers is to connive at a confidence game which is all the meaner because practiced upon the sick. If I can co-operate with you in any way in awakening the public conscience it will give me satisfaction. Very gratefully and truly yours,

W. G. BALLANTINE.

It is not a difference of opinion, mind you, in this case; neither is it something these fellows

have discovered that Prof. Wiley and Pres. Ballantine know nothing about. In their circulars and their claims they have invaded the chemist's domain—have talked about taking oxygen from the air with their humbug apparatus. They evidently know too little of chemistry to realize what absurd quackery they are promulgating. In any case, they are guilty of hypocrisy and deceit. They know full well there is no meaning at all, and no science, to the jargon of their circulars. Now, mind you, this is not simply *my* assertion. All learned men and scholars of the present day are in accord with the position I have taken. They *must* stand with me, for there is no other place to stand. I leave it to you—is it probable that these pretenders have discovered something valuable and good? Do men gather grapes of thorns, or figs of thistles? Since you have undertaken to defend these things, I wish you would turn to page 274, where I quoted from the Oxydonor circular, and answer me as to whether there is sense or science in what I quoted.

I thank you for your concluding words. You are aware, friend V., that I do, in every issue of our journal, exhort all mankind to turn to the Lord Christ Jesus; but should I be called upon to stop a thief in the streets, or to arrest a midnight assassin, I should hardly think it worth while to exhort the thief or assassin, in the same breath, to turn to Christ. Should I not, rather, call upon the officers of the law to arrest him and put him safely in prison, and then sit down by his side and exhort him to lead a different life?

I have looked the Oxydonor circular, which you were so kind as to send, all over, and I confess the testimonials are astounding; but, dear friends, have you not noticed testimonials are now floating for almost every thing? And they are getting men with "Rev." attached to their names to indorse it. If you go among the heathen you could, no doubt, get thousands of testimonials as to the efficacy of their gods, made of wood and stone; but it would not, in your opinion, help your faith in those gods; on the contrary, it would sink your faith in those who were so foolish. If Oxydonor and Electropoise shall be the means of waking people up to the absurdity of this whole matter of being cured by every new thing that turns up, no matter whether it has sense or science either to back it, then I grant you some good will be done. If these men have made a discovery, why do they not come forth boldly, and proclaim it to the scientific world? They *dare not* do it. I do not think I have ever met a man who had the cheek or hardihood to stand up before intelligent and educated people, and attempt to palm off such ridiculous stuff for truth or sense. I should pity a man who would even attempt it.

On page 333 we gave the names of four religious papers that would not accept advertisements of Electropoise. There was a fifth one in this group—the *Outlook*; but before we went to press a late copy was received containing a large advertisement of the thing. Of course, the *Outlook* was taken out. As we go to press we find the following in *Electricity* for April 24:

For a journal to assist in the promotion of a gross swindle, and to accept the money of a swindler as a consideration for that assistance, precludes the possibility of such a journal, or the clergyman conducting it, doing successful missionary work among those who know the facts, and there are thousands. We may add that we have the names and addresses of six members of Plymouth congregation who state that they were humbugged out of the price of an Electropoise through seeing it advertised in the *Outlook* some months ago.

I will add here that the editor of the *Outlook*

is the Rev. Lyman Abbott, now pastor of Plymouth Church, Brooklyn, N. Y., the pulpit formerly occupied by the late Henry Ward Beecher.

A. I. R.

TOBACCO AND SCHOOLTEACHERS, ETC.

Your little extract from the *Rural New-Yorker*, in the issue for Apr. 15, induces me to relate the following: When I read that article in the *Rural* I just wanted to give the editor a good old-fashioned handshake and tell him that I had once been in just that predicament. When I began taking GLEANINGS, in 1887, I did not like the tobacco articles, and I fancied A. J. Root was meddling with something that was not in his line. I was teaching, and was using tobacco on the sly, for you see my guilty conscience would not let me be bold about it. By and by, when the State made a law that the evil effects of alcohol and narcotics should be taught in our common schools, our examiners went one step further and would not grant a certificate to any one who used tobacco. This question was asked both lady and gentleman applicants at first; but at present males only are put through the test. You see, it was hardly in harmony with our progressive age for an examiner to look a fair young lady in the face and say, "Do you use tobacco?" Imagine the embarrassment for both. Well, when the examiners made the new ruling I didn't like to give up teaching, so I quit chewing, and resolved to smoke occasionally, generally in the evening, just before retiring. Now, the funny thing about this is, I had imagined I couldn't live without my quid, and I am surprised now to look back and see how soon it was forgotten; but about one night every month or so I dream of having my quid in my mouth; and while the dream lasts I suffer the old anguish and torment to be loose from my old bondage, and I tell you it is a relief to awake and find "it's all a dream."

The smoking was continued till a year ago, when a young lady became an equal partner. The smoking seemed to poison my system to such an extent that, during the night, so much of it was given off that she awakened every morning with a heavy headache. The smoking was stopped, and to-day I am free from a slavery that had me once in an iron grasp. Last winter one of my boys said, "Teacher, do you use tobacco?" I pleasantly replied, "I am free from the habit; and, God helping me, I am ever going to remain so." The supreme satisfaction of being able to say conscientiously what I did to him rewarded my effort. "For surely there is no excellence without great labor."

Lebanon, O., April 19.

DR. J. Q. MULFORD.

BEST ON EARTH.

WILLIAMS AUTOMATIC REVERSIBLE

HONEY-EXTRACTOR.

Perfect in principle and workings. Here is what the veteran bee-keeper, N. E. France, of Platteville, Wis., says of it: "I consider the Williams Automatic Reversible Extractor head and shoulders above any I have ever used, and furthermore, consider it the BEST on the market." Mr. France produces extracted honey by the carload, so he is good authority on extractors. For price list No. 1 of Extractors, choice Italian Bees, Queens, etc., address

VAN ALLEN & WILLIAMS, Barnum, Wis.

In responding to this advertisement mention GLEANINGS.

100 Breeding Queens.

We have got 100 very FINE SELECT (breeding) Gray Carniolan queens that we can ship by return mail for \$3.50 each. Don't fail to send for our free descriptive price list of the Gray Carniolans and golden Italians.

F. A. Lockhart & Co., Lake George, N. Y.

In responding to this advertisement mention GLEANINGS.

GOLDEN QUEENS

Bred for business. Untested, May, 70 cts. each; 3 for \$2.00. Tested, \$1.00 each. Fine breeders, \$2.00 each extra. Select straight 5-banded breeding-queens, \$4.00 each. To all new customers one GOLDEN QUEEN for 50 cts. Satisfaction and safe arrival guaranteed.

E. A. SEELEY, Bloomer, Ark.

P. O. Money Order office, Lavaca, Ark. 7-20
In responding to this advertisement mention GLEANINGS.

EGGS from pure B. P. Rocks, cheap, for hatching or incubator. Cards cheerfully answered.
MRS. L. C. AXTELL, Roseville, Illinois.

Hives,

Foundation,

Sections,

Bees,

Queens,

Or

Any

Thing

A

Bee-keeper

Needs.

2-frame nucleus with untested queen \$2 50
3-frame nucleus with untested queen 3 25
Ready to ship. Discount on quantities.
40,000 2-lb. $\frac{1}{4} \times \frac{1}{4} \times \frac{1}{2}$ sections, per 1000 1 50
40,000 2-lb. $\frac{1}{4} \times \frac{1}{4} \times \frac{1}{2}$ sections, per 1000 1 35
Every thing shipped from this city. Catalog free.

I. J. STRINGHAM, 105 Park Place, N. Y. City.

In responding to this advertisement mention GLEANINGS.

H·O·N·E·Y!

If we would be successful in the production of honey it is of vital importance that our queens be first-class. After an extended experience with the different races of bees brought to this country, I am led to believe, all things considered, that these direct from Italy have never been improved upon. Large yellow prolific queens from imported mothers, mated to drones of imported stock from a different source, securing a direct cross. Untested, ready May 25, 75c; 6, \$4.25; 12 for \$8.00. Select untested, \$1.00. No disease.

L. H. ROBEY, Worthington, W. Va.

In responding to this advertisement mention GLEANINGS.

Must be Sold.

75 Langstroth and Simplicity hives made up and painted, mostly new; supers and wide frames, 3000 sections, Simplicity smokers, all new; 100 straight combs, nice and clean. Send on your offers for part or whole.

E. Y. PERKINS, Lenox, Iowa.

Please mention this paper.

.....HONEY-MAKERS

Are a strain of Italian bees that we have produced by years of careful breeding. Queens will be ready May 15. Tested queens in May, \$2.00; untested, \$1.00; half-dozen, \$5.00; tested queens in June, \$1.25; untested, 75c; half-dozen, \$4.00. Please state in your order whether imported or golden queens are wanted.

LEININGER BROS., Ft. JENNINGS, O.

In responding to this advertisement mention GLEANINGS.

Still in the Lead!

Hilton's White T Supers,
Chaff Polished Foundation,
Hives, Sections, Smokers,
and every thing needed in the apiary.
Send for 1895 catalog.

GEO. E. HILTON, = = Fremont, Mich.
Please mention this paper.

Best on Earth.



Bingham's five sizes of bee-smokers range in price from 50c to \$1.75 per mail, and are the lowest-priced of any in the market, according to size. Bingham Smokers and Knives are made only by the inventor, and can be depended on every time, as they have been for 16 years as the best that could be made or used.



Mention GLEANINGS, and send for circular of prices.

T. F. BINGHAM, Abronia, Mich.

Please mention this paper

Control Your Swarms, Etc.



Send 25c for samples of West's Patent Spiral wire Queen-Cell Protectors, and Pat. Spiral Queen Hatching and Introducing Cage, also best Bee-Escape, with circular explaining. Twelve Cell-protectors, 60c; 100, \$3.12 cages, \$1; 100, \$5, by mail. Circular free. Address N. D. WEST, Middleburgh, Scho. Co., N. Y.

Sold also by all the leading supply-dealers.

In responding to this advertisement mention GLEANINGS.

Golden Queens From Texas.

My queens are bred for business, as well as for beauty and gentleness. Safe arrival and reasonable satisfaction guaranteed. Untested, \$1.00; tested, \$1.50.

Write for price list. 5-16ei

J. D. GIVENS, Lisbon, Texas. Box 3.

In responding to this advertisement mention GLEANINGS

Dovetailed Hives.

Sections, Extractors, Smokers, and every thing a Bee-keeper wants. Honest Goods at Close Honest Prices. 60-page catalog free.

J. M. JENKINS, Wetumpka, Ala.

Alley's Combined Queen-Trap and Swarm-Catcher.
Description and price list now ready.
HENRY ALLEY, Wenham, Mass.

Please mention this paper.

A Tested Queen Free!



Pure Italians. To every one buying 1 1/2 doz. untested queens I will give a tested one free. Untested, 60c; tested, \$1.00; selected tested, \$1.50; breeders, \$3.00.

STEWART BROS., Sparta, Tenn.

In responding to this advertisement mention GLEANINGS

PATENT WIRED COMB FOUNDATION

Has No Sag in Brood-frames.

Thin Flat-Bottom Foundation

Has no Fishbone in the Surplus Honey.

Being the cleanest, it is usually worked the quickest of any foundation made.

J. VAN DEUSEN & SONS,

1275db Sole Manufacturers,
Sprout Brook, Montgomery Co., N. Y.

In responding to this advertisement mention GLEANINGS.

Sweetheart.

A Regular Sugar Lump.

LEADS ALL Early, Large, Handsome, Good Ship-
per, Best Quality. Send for circular
WATER- giving important facts to growers and
MELONS shippers, with comparative sales and
ON opinions of many commission men in
THE leading northern markets.
MARKET. Seed, Packet, 10 cts.; lb., \$1.50.

ALBERT WITTENMYER,

Originator, Grower, and Shipper,

Emison, Knox Co., Ind.

In responding to this advertisement mention GLEANINGS.



DON'T MONKEY NOW.

Send for our 36-page catalog free.

Root Co.'s Supplies kept in stock.

In order to reduce our stock for the next two months will give large discounts. Write us what you need. Get our prices

JNO. NEBEL & SON, High Hill, Mo.

Please mention this paper.

The New Craig Seedling Potato.

For full description of this Potato, see page 959 of this journal for Dec. 15, 1894. Prices: 1 lb by mail, postpaid, 25 cts; 1/2 peck, by freight or express, \$1.00; peck, \$1.75; 1/2 bushel, \$3.00; bushel, \$5.00; barrel of 11 pecks, \$12.50. The above prices will hold good as long as our stock lasts. All orders by mail will be filled as soon as received. Orders by express will be shipped at once unless ordered otherwise. All orders for potatoes by freight will be filled April 1, or soon after that time, unless directions are given to ship at an earlier date. In this latter case I do not assume responsibility for loss in freezing; but where it is desirable to ship earlier, and customers have bad luck, I expect to help them out so far as I can consistently. In regard to my responsibility I would refer you to A. I. Root. In fact, where it is more convenient you can order potatoes of the A. I. Root Co., instead of sending your orders to me.

GEO. E. CRAIG, Zimmer, Franklin Co., O.

In responding to this advertisement mention GLEANINGS

World's Fair Medal

Awarded my Foundation. Send for free samples. Dealers, write for wholesale prices. Root's new Polished Sections and other goods at his prices. Free Illustrated Price List of every thing needed in the apiary. M. H. Hunt.

Bell Branch, Mich.

Please mention this paper.

TAKE NOTICE!

BEFORE placing your orders for SUPPLIES, write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation. Smokers, etc.

PAGE & LYON MFG. CO.,

New London, Wis.

8tdfb

Please mention GLEANINGS.

21-8db